Fall 2016

The Differences in Teacher Self- Efficacy Beliefs Among Elementary School Teachers

Christopher Litz
Old Dominion University

ABSTRACT

Title of Document: THE DIFFERENCES IN TEACHER SELF-EFFICACY BELIEFS AMONG ELEMENTARY SCHOOL TEACHERS

Christopher Litz,
Doctorate of Education, 2016

Directed By: Karen Sanzo, Ed.D
Associate Professor of Educational Leadership

The purpose of this dissertation was to conduct a study that explores the differences in self-efficacy beliefs among specific teacher subgroups within the elementary school environment. This quantitative study searches for the differences in self-efficacy beliefs among teachers who instruct mandated state assessment subjects and those who do not. In addition, this study also attempts to search for differences in self-efficacy beliefs among elementary general education teachers and elementary specialists. This study utilizes Anita Hoy's Teacher Sense of Self-Efficacy Scale (TSES) to find the self-efficacy differences in three particular domains: classroom management, student engagement, and instructional strategies.

This study will exercise the Mann-Whitney-Wilcoxon (MWW) test to analyze the results of the TSES. This method analyzes central tendency differences across two populations and is the benchmark test for non-parametric statistical analysis. Moreover, the goal of this dissertation is to inform educational leaders of the possible repercussions state-testing has on teachers who administer these high-stakes assessments.

THE DIFFERENCES IN TEACHER SELF-EFFICACY BELIEFS
AMONG ELEMENTARY SCHOOL TEACHERS

by

Christopher Litz

Old Dominion University

A Dissertation presented to the Darden College of Education
Department of Educational Leadership Studies
Old Dominion University, in partial fulfillment
of the requirements for the degree of
Doctorate of Philosophy
November, 2016

Approved by:

Committee Chair: Karen Sanzo, Ed.D
Associate Professor of Educational Leadership
Committee Member: Steve Myran, Ph.D
Associate Professor of Educational Leadership
Committee Member: Alan Schwitzer, Ph.D
Professor of Counseling, Department of Counseling & Human Services
Old Dominion University

DEDICATION

This dissertation is dedicated to my parents for teaching me the value of hard work. This work is also dedicated to Ed and Melissa Hasse for their constant support. In addition, this dissertation is devoted to Dr. Melaney Mackin who has always given a helping hand and who has looked out for my best interest. Most of all, this work is dedicated to my wife for all of her unwavering support and love.

TABLE OF CONTENTS

CHAPTER 1:

Background

Schools across the United States are required to meet the strict mandates stipulated by the No Child Left Behind Act of 2001 (NCLB) and the current educational policy of the Every Student Succeeds Act (ESSA). The Federal Government has given funding to schools only if states adopt the strict policies of NCLB and ESSA which force student academic improvement in Reading, Math, and Science (U.S. Government Accountability Office, 2009). What followed NCLB was an increase in demands from teachers, principals, and other school personnel in order to help improve student academic progress through various means. Teacher and principal evaluations were now being linked to student progress that was demonstrated on a high-stakes test. The high-stakes tests set forth by the NCLB requirements and now ESSA have left schools, teachers, and administrators trying to figure out how to still deliver quality instruction without "teaching to the test."

The NCLB and ESSA requirements mandate schools must be measured each year according to student-achievement progress in language arts and math tests. It is then determined by each state how to adequately assess each school based on the standardized tests. If a school achieves Adequate Yearly Progress (AYP), which is the NCLB and ESSA barometer of year-to-year student achievement on state standardized assessments, then the school's improvement goal is raised for the next school year. If a school fails to meet AYP for two consecutive years, then it is categorized as "Needs Improvement" with each state determining how to improve the school's achievement scores (Arp and Hand, 2015). Some states may decide to replace the faculty of a

failing school, have students from the failing school attend another school in the district, or include more state involvement in day-to-day operations of the failing school.

Several studies have examined the NCLB Act's high-stakes testing's effect on educators and the pressures these tests have placed upon educators as an unintended consequence. (Jones, Jones, & Hargrove, 2003; Neill et al., 2004; Nichols & Berliner, 2005; Orfield & Kornhaber, 2001; Valenzuela, 2005). Despite supporters of high-stakes testing claiming a student's education can be improved via a reward/punishment system based off student standardized test scores, a study conducted by Nichols, Glass, and Berliner (2006) found no relationship among testing pressure and student achievement in reading in any age or student subgroup category (Raymond & Hanushek, 2003). Morever, Yeh (2005) found that some of the negative effects associated with high-stakes testing include "narrowing the curriculum by excluding from it subject matter not tested, excluding topics either not tested or not likely to appear on the test even within tested subjects, reducing learning to the memorization of facts easily recalled for multiple-choice testing, and devoting too much classroom time to test preparation rather than learning" (Mitchell, 2006). Cimbricz (2002) found that high-stakes tests can impact teacher beliefs and their instructional practice but the extent to which is unknown. Brown's (2004) survey of school counselors in North Carolina and found that eighty percent of the survey responders act as test coordinators and this in turn impacts the instructional time they have with students.

A teacher's sense of self-efficacy can impact student academic achievement, therefore it is crucial to discover the relationship of how high-stakes testing pressures can impact a teacher's sense of self-efficacy (Hoy, 2000). A teacher with a strong sense of self-efficacy tends to be a more proficient organizer and planner; more enthusiastic when adjusting instructional techniques

to fit the learning needs of students; more resilient and tenacious when instructional goals are not yet met; less critical of students who make academic mistakes; less persuaded to raise concerns about referring a student for special education services (Jerald, 2007). Despite the demand increases for teachers' time, energy, and personal resources, all of which are aimed at helping students achieve proficiency on a state-mandated high-stakes test, researchers have yet to discover if a teacher's sense of self-efficacy is impacted by a state-mandated test.

This research study seeks to uncover if high-stakes testing impacts a teacher's sense of self-efficacy. My intent is to discover if the pressures of a state mandated high-stakes test affect the self-efficacy beliefs of elementary teachers within a diverse school district.

Chapter 1 of this dissertation will explore research related to assessment and teacher efficacy beliefs followed by two research questions. Chapter 2 will examine additional research related to teacher self-efficacy beliefs as well as the conceptual theories and guiding theories influencing the dissertation proposal. Chapter 3 details the methodology for the research being conducted. Chapter 4 will discuss the results and Chapter 5 will examine the implications from the results presented.

Teacher Efficacy

Within the past thirty years, teacher efficacy has become a debated concept in education. The stipulations of NCLB and ESSA require students must improve their academic standing in reading, math, and science with a strict emphasis on measuring success through formal assessment. William (2010) states that assessment is the most popular way of measuring student success because each stakeholder within an educational community is familiar with straightforward, familiar instruments. Teacher self-efficacy is defined as "a judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even

among those students who may be difficult or unmotivated" (Tschannen-Moran & Hoy, 2001, p. 783). Since the desired outcome for many teachers, principals, and administrators is an increase in student performance as measured by an assessment, a teacher's sense of self-efficacy can be influenced positively or negatively by the results.

A teacher's sense of self-efficacy influences many different aspects of a teacher's instructional practice. A teacher's instructional behavior, classroom organization, and feedback regarding struggling students are all impacted by a teacher's sense of self-efficacy (Woolfolk & Hoy, 1990; Woolfolk, Rosoff, & Hoy, 1990). For example, a teacher with a low sense of self-efficacy tends to focus more on classroom management and less interruption during their daily routine while a teacher with a higher sense of self-efficacy is more determined to instruct students until a student demonstrates proficiency on a given subject matter (Gibson & Dembo, 1984). Henson (2001) found teachers with a high sense of efficacy interpret and experience more student success since these teachers are less concerned about any negatives which may arise from instructional practice. Coladarci (1992) discovered teachers with a high sense of self-efficacy had a greater commitment to the teaching profession. Moreover, building a novice teacher's sense of self-efficacy can help to expedite the learning curve, and thus counterbalance the void left by teachers who choose to leave the profession due to the high demands of the workload.

A teacher's self-efficacy can also contribute to student success and student academic progress. Student academic progress increases when students have a teacher who has a high sense of self-efficacy (Ashton & Webb, 1986; Ross, 1992). In addition, student motivation increases (Midgley, Feldlaufer, & Eccles, 1989) and a student's *own* sense of self-efficacy increases when the instructor has a high sense of self-efficacy (Anderson, Greene, & Loewen,

1988). Ross, Cousins, and Gadalla (1996) found a teacher with a high sense of self-efficacy tends to devote more of their own personal time to the profession and also teach their learning targets in a more interesting way to their students. Conversely, teachers with a lower sense of self-efficacy tend to put in less time practicing their instruction and tend to repeat instructional practices without making any reflections or alterations.

Assessments

Formal assessments are used by school systems across the United States to determine whether students are improving academically. Teacher evaluations are frequently linked to high-stakes assessments which are intended to measure "student academic progress." Many school systems, such as the Virginia Department of Education (VDOE) believe student academic measurement utilizing a high-stakes test can enhance the learning process if the current measurements in place are used to affect specific classroom instructional techniques (U.S. GAO, 2009). Since NCLB in 2001, many states utilize declarative knowledge based tests since the test construction and the scoring of the test would be cost-efficient (U.S. GAO, 2009). The federal government determined that too many teachers were "teaching to the test" and something needed to be changed. U.S. GAO (2009) was decisive in stating teachers spend more instructional time on subjects were assessed, thus promoting very little instruction on subjects that were not state tested. This dissertation is utilizing the VDOE in this research since I have taught in the state of Virginia for a portion of my teaching career.

The mandates of NCLB and ESSA force states to establish specific goals for increasing student academic progress in reading and math with specific emphasis on diminishing the achievement gap among different student groups within the school. Many states, such as Virginia, applied for a waiver from the United States Department of Education which allowed

for only Virginia's lowest performing schools to set improvement goals (VDOE, 2013). The improvement goals had to be established in reading and math while Virginia's higher performing schools needed to establish annual measurable objectives (AMOs). AMOs are based on the Standards of Learning (SOL) tests which are given to students in Virginia during the spring of each school year. The Virginia Department of Education (2013) believes the AMOs are intended to close the achievement gap of student subgroups within the school.

The Standards of Learning (SOL) were established as an accountability structure by designing yearly assessments which review student learning objectives. The SOL were evaluated and redesigned by the VDOE in 2009 in order to ensure the standards were meeting or exceeding the new Common Core State Standards which were adopted by forty-three states (not including Virginia). The Common Core State Standards were intended to ensure students would be "college and career ready" by the time they graduated from high school. The new redesigned SOL assessments also reflected the new standards. The redesigned SOL tests were more "technologically complicated" with new "technology enhanced items" (VDOE, 2010). The technology enhanced items (TEI) allow students to rearrange the test items or move objects within the question. This was done to reflect the critical thinking skills which were incorporated into the new SOL. When the redesigned tests were first implemented, student achievement scores fell considerably due to the TEI on the various assessments (VDOE, 2010).

Teacher and School Evaluation

Since 2001 and the No Child Left Behind Act and the current policy of ESSA, student testing has been determined the most appropriate measure of evaluating the progress of a school. The federal and state government require administrators and teachers to be evaluated on the progress their students make on various state assessments. While this accountability system can

be efficient, poor student test results can also adversely affect the teachers: For example, a teacher who discovers her students performed poorly on a state assessment may decide to revert to solely traditional instructional methods, which only "teach to the test." Teacher and school evaluation must be designed to reflect the improvement on instructional methods rather than student academic performance on a test.

Statement of the Problem

Teacher self-efficacy beliefs have been studied in great detail but little is known about the impact that teaching assignment and high-stakes testing has on teacher self-efficacy beliefs. Many teachers who do not administer a high-stakes test that is designed to measure student achievement do not have the same pressures and accountability mandates facing a teacher who is instructing a "state-tested grade" (Amrein & Berliner, 2002). Educational leaders need to gain an understanding of the pressures associated with high-stakes testing, why certain teachers have a higher sense of self-efficacy than others, and why teaching assignment can affect a teacher's sense of self-efficacy (Amrein & Berliner, 2002).

Purpose of this Study

The examination of teacher efficacy is a central subject retaining quality teachers, the need to investigate possible causes which affect teacher efficacy is crucial. This study investigated the differences in self-efficacy beliefs among elementary general education teachers and elementary specialists in one Virginia school division. The purpose of this study was to determine if the Virginia Standards of Learning tests change a teacher's self-efficacy beliefs while also exploring teacher experience, teacher education, class size, gender, and grade level.

To accomplish the purpose of this study, the following research questions were asked:

1) How do self-efficacy scores compare in the areas of (a) instructional strategies, (b) student engagement, and (c) classroom management when teachers are placed to instruct an elementary general education classroom vs. serve as an elementary specialist?

2) How do self-efficacy scores compare in the areas of (a) instructional strategies; (b) student engagement; and (c) classroom management when elementary general education teachers are asked to instruct in SOL-tested subjects vs. when they are not?

Significance of this Study

The significance of conducting this study will be used: (a) to utilize the results in order to allow policymakers, researchers, and school administrators to make informed decisions regarding the role state testing plays in the development of a teacher's sense of self-efficacy; (b) to provide educational community members and school leaders with statistics to plan effective professional development exercises; (c) to enhance research on teacher efficacy and the impact state testing has on elementary general education classroom teachers.

Theoretical Framework

This study utilizes human agency and social cognitive theory to help guide the research. Human agency was proposed by Bandura (1997) as a part of social cognitive theory. Human agency is related to a teacher's sense self-efficacy since efficacy beliefs can influence a teacher's decision. For example, if a teacher with a low-sense of self-efficacy believes he or she is unable to produce a desired result, then he or she is unlikely to perform the required instructional actions needed to promote student achievement (Bandura, 1997). Social cognitive theory holds true that teacher's beliefs influence classroom operations. If a teacher feels a task is too difficult to complete, he or she can become discouraged despite having the necessary resources to complete

the task. This creates an environment in which fixed mindsets are developed and new instructional techniques are not used due to a low sense of self-efficacy (Bandura, 1977).

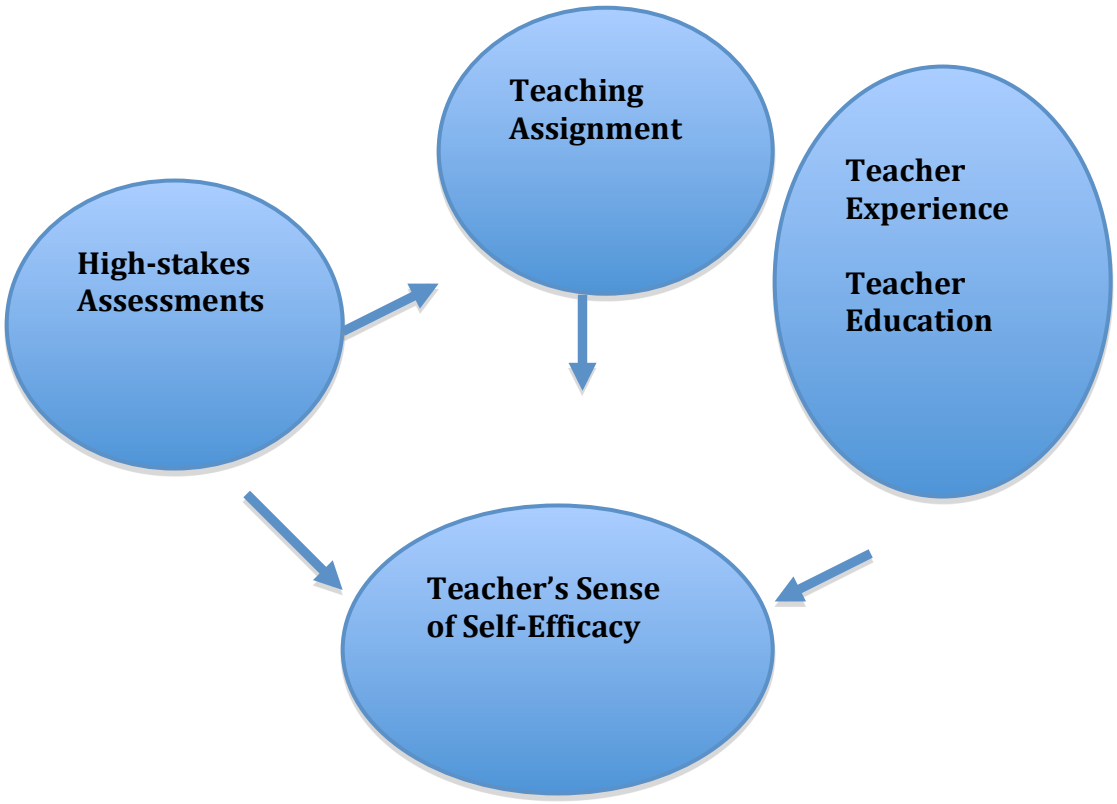

Figure 1. Teacher Sense of Self-Efficacy Influences

Conceptual Framework

This conceptual framework describes the relationship among various sources of influential effects, which can impact a teacher's sense of self-efficacy. This broadly defined

concept represents the various stimuli that can alter a teacher's understanding of their own effectiveness in various instructional practices. Typically these various concepts are interwoven within the instructional profession and can be altered based on various external influences which can include a high-stakes test designed to measure the academic growth of students over the course of a school year. Many states employ high-stakes testing to ensure accountability measures are being met as defined by NCLB and now ESSA. High-stakes tests result in a number of unintended consequences including the impact of teacher efficacy. Tschannen-Moran and Barr (2010) discovered there is a positive relationship among collective efficacy and student achievement as measured by a high-stakes test. While collective efficacy is not the same as self-efficacy, both are interdependent (Goddard, Hoy & Hoy, 2000).

A second aspect of the conceptual framework is teaching assignment. While a teacher's sense of self-efficacy can be influenced by multiple factors over the course of a career, teaching assignment has yet to be determined as an influence (Hoy & Spero, 2005). This serves as the focus for this study because if high-stakes testing can influence efficacy, then teachers who administer high-stakes tests may have different self-efficacy beliefs than those who do not. The final aspect of the conceptual framework is teacher education, teacher experience, and class size. This aspect should be viewed as self-directed teacher influences which can influence a teacher's sense of self-efficacy. This should be depicted as a frame of activated, self-driven behaviors which unintentionally impact a teacher's method of instructional practice. The Virginia SOL Test, teaching assignment, teacher education and teacher experience all help shape a teacher's self-efficacy. These operated as the nucleus of the design and analysis for this study of examining the differences in teacher self-efficacy beliefs as seen in Figure 1.

Limitations

The study has the following limitations:

1) If class sizes for each teacher comprise mixed academic ability, with classroom populations ranging from eighteen to thirty. Special education students were typically in co-taught classrooms with both the general education teacher and the special education teacher.
2) The teacher's sense of self-efficacy scale was based on self-report.
3) The amount of teachers responding to the survey did not equal 100% participation.
4) This study only focused on one sample within one school district in Virginia.
5) Student factors were not included in this study.

Delimitations

The following delimitations are listed:

1) The control variables were limited to teaching assignment, teacher experience, teacher education, and class size.
2) The independent variables were limited to a teacher's sense of self-efficacy in classroom management, instructional strategies, and student engagement.
3) The study only included one school division.
4) Student and school SES were not included in this study.
5) Special education teachers will be given the teacher-sense of efficacy scale.

Conceptual and Operational Definitions

Elementary general education classroom teacher is classified as a teacher who instructs students in grades kindergarten through fifth. These teachers educate students on the "core subjects"; reading, writing, mathematics, science, and social studies. These teachers are not special education teachers and the elementary general education classroom teacher typically

instructs a class of twenty students or more. The environment in which these teachers instruct is a "typical" classroom setting and not a small group.

Elementary school is an educational institution serving students in grades kindergarten through sixth.

Elementary specialist is defined as a teacher who instructs students in any subject that is not a "core subject." These subjects include art, music, physical education, library, and foreign language. Special education teachers and guidance counselors are also included in this group as well. These teachers will either instruct students in their own classroom or with instruct students in another location within the school grounds.

Self-efficacy is one's confidence to achieve a desired result through a determined course of action (Bandura, 1997).

Self-efficacy beliefs is an individual's perception of himself or herself to achieve a desired result under a particular set of circumstances (Bandura, 1997).

Teacher efficacy is described as "teachers' belief in their ability to have a positive effect on student learning" (Ashton, 1985), "the extent to which the teacher believes he or she has the capacity to affect student performance" (Berman, McLaughlin, Bass, Pauly, & Zellman, 1977, p. 137), as "teachers' belief or conviction they can influence how well students learn, even those who may be difficult or unmotivated" (Guskey & Passaro, 1994, p. 628), or as a teacher's "judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated" (Tschannen-Moran & Woolfolk Hoy, 2001, p. 783).

Virginia Standards of Learning (SOL), the standards for academic subjects in which students are expected to be proficient in by the end of the academic year. The standards are for

students in grades kindergarten through twelve in English, mathematics, science, history/social science, technology, the fine arts, foreign language, health and physical education, and driver education (VDOE, 2013). Table 1 lists the grade specific tests for each SOL test eligible grade will take in the elementary school.

Table 1:

SOL Tested Subjects and Grade Level Chart

	Reading	Math	Social Studies	Science
Grade 3	X	X	X	
Grade 4	X	X	X	
Grade 5	X	X		X

Organization of the Study

For school systems across the country, student standardized testing has become a means of evaluating teacher performance. Since teacher efficacy can impact student performance, this study seeks to explore if standardized testing can impact a teacher's sense of self-efficacy. This study examined literature on teacher efficacy, standardized testing, teacher accountability, and effective instruction. Chapter One introduces teacher efficacy, assessment, the conceptual framework, and teacher evaluation. Chapter One also includes various definitions, the research questions, limitations, delimitations, and the purpose of this study. Chapter Two presents a literature review on social cognitive theory, human agency, and teacher efficacy. Chapter Three explains the quantitative methodology used in this study. Included were the population surveyed, the survey instrument, the data analysis methods, and how the data was interpreted. Chapter

Four details the results of the data and what the outcomes revealed. Chapter Five describes the findings, implications, and recommendations on the study for practice and further research.

CHAPTER 2

Literature Review

The teaching profession is a complex social occupation with many different characteristics, which enable practitioners to make a lasting influence on the life of a student. A teacher's sense of self-efficacy is crucial to the teaching profession since it can influence a student's education and the career of a teacher in positive and negative fashions (Allinder, 1994; Ross et al, 2001; Ashton & Webb, 1986). Teacher quality has also been proven to be the biggest indicator of student success (Darling-Hammond, 1998). In many cases, teachers are compelled to instruct students in order for students to pass a high-stakes assessment at the end of a school year. This could impact teacher self-efficacy beliefs since collective efficacy can be altered due to positive or negative performance on a high-stakes assessment (Tschannen-Moran & Barr, 2010).

Teacher self-efficacy is an important subject within the teaching profession and in order to fully understand its importance, one must comprehend social cognitive theory and the locus of control theory. Since there is little research regarding teacher self-efficacy beliefs and high-stakes assessments as well as teacher self-efficacy beliefs and teaching assignment, this literature review seeks to provide literature regarding teacher self-efficacy and high-stakes assessment and teaching assignment. In addition, this literature review expands on current and historical teacher self-efficacy research based on different research studies. First, this literature review will address social cognitive theory and human agency. Next, I will discuss the various sources of self-efficacy influences. Then I will examine self-efficacy and socioeconomic status (SES) and teacher efficacy in conjunction with student engagement. Then this literature review will explore teacher efficacy and special education followed by how self-efficacy is built. Next, teacher

efficacy among various stages of an instructional career will be analyzed. Finally, instructional change and school level in regards to teacher efficacy will be reviewed.

Theoretical Framework

Social cognitive theory. There are two main theories which have directed research regarding teacher efficacy. Bandura's (1977) social cognitive theory is the true foundation of research analyzing teacher efficacy and Rotter's (1966) locus of control theory needs to be included since the first measurement of teacher efficacy was developed by the Rand Corporation and used the locus of control theory as their basis. Bandura (1977) considered the beliefs of a person impact their individual effort toward accomplishing a task and also influences individual willpower when problems arise. He also maintained that individual beliefs influence one's own anxiety and how one manages that anxiety. Social cognitive theory also presumes that the combination of environmental and personal factors affect an individual's behavior and an individual's environment can alter due to the influence of behavior.

Social cognitive theory can also be related to the teaching profession. This theory holds true that a teacher who deems himself or herself as ineffective will put less exertion into preparing instruction and teaching. When an issue arises in which an educator feels is difficult, he or she can become disheartened even though they may understand the correct procedures to remedy the situation. These negative beliefs can cause a teacher to have a low sense of self-efficacy despite the fact they know how to treat a child's learning difficulties. Once a teacher has a fixed mindset with a low sense of self-efficacy, they may not use new or different instruction methods to diffuse disorderly behavior. Bandura stated teacher efficacy can be categorized as personal efficacy or professional efficacy. Personal efficacy is how a teacher

handles student learning while professional efficacy is the mindset a teacher is able to have an effect on external factors (Wheatley, 2002).

Social cognitive theory believes individuals have different skills which allow them to work. Bandura (1989) proposed using symbols as a way of increasing consciousness of having some control over their environment since environmental features influence cognitive tasks. Bandura stated, "Symbols serve as the vehicle of thought" (p. 6). Symbols provide a person with sense, assistance in living daily life, and allowing people to talk with each other. For teachers, their interactions with students are extremely important. Bandura (1986) stated, "transient experiences into internal models that serve as guides for future action" (p. 18). When instructors are able to think about their everyday work it allows them to concentrate on their everyday instructional objectives and gives them the opportunity to establish goals related to their job. A teacher who is considered not dedicated to their job will typically not prepare lesson plans which gives the impression they have not set instructional objectives. Strong efficacy beliefs give teachers the confidence to put more exertion into instructing students and set work goals (Tschannen-Moran & Woolfolk Hoy, 2001). Since contemplation is the basis of achievement and short-comings, individual behavior should be guided by goals and managed by forethought (Bandura, 1986).

Bandura stated that using forethought and planning can lead to higher motivation levels, predictions, and direction (1986). When teachers are able to set objectives and have a purpose, it can direct the individual to experience self-regulation, which contributes to higher efficacy levels. When teachers take ownership of their work not because of fear of school administration, they tend to have a higher sense of self-efficacy. Anticipation is associated with teacher efficacy because a teacher with a high level of self-efficacy is usually associated with strong planning and

organizational skills (Tschannen-Moran & Woolfok Hoy, 2001). Teacher efficacy and motivation also have a relationship (Tschannen-Moran & Woolfolk Hoy, 2001). Since self-regulation is a component of social cognitive theory, it is important to consider its implications on individuals. An individual's behavior is usually influenced through motivation of the individual. Self-regulation helps a person adjust their motivational feelings. Bandura (1989) believes children should be able to adjust their behavior without the continuous support of significant others.

When a teacher is able to contemplate willfully about their current teaching practice, higher efficacy levels are achieved. When a teacher has a high sense of self-efficacy, he or she can analyze his or her own performance as it pertains to student achievement. Also, a teacher with a strong sense of self-efficacy is able to differentiate instruction for students of all ability levels can adjust student behavior without using punishment techniques. Ashton and Webb (1986) found a teacher with a high sense of self-efficacy does not disparage students who make unforced errors since the teacher is concentrating on student learning. This allows for students to reflect and change their learning practice.

Individuals which use self-reflection of their experiences are able to formulate their own perceptions about information which pertains to them. Reflection is not the lone way to develop new perceptions but it is a method of fine-tuning their own ideas. Self-assessment involves individuals altering their arrangements and ideas, assessing their thinking strategies based on results, and creating suitable changes (Bandura, 1986). Self-efficacy pertains to these types of self-assessment. Self-efficacy can become the moderator between an individual's setting and their corresponding actions. A teacher with a strong sense of self-efficacy can impact student actions and assist students in defeating overwhelming situations outside of the academic world.

Human Agency. Human Agency, also referred to by Bandura (1997) as human "acts done intentionally" is intertwined with teacher efficacy (p.3). This portion of social cognitive theory holds true that if teachers feel positive about their instructional approaches, it will improve student learning and retention. Bandura noted efficacy beliefs have a huge influence on human agency. Bandura stated, "…unless people believe they can produce desired effects, by their actions; they have little incentive to act" (pp. 2-3). Dellinger (2008) noted an individual's self-efficacy beliefs are connections among knowledge and behavior while coinciding with environmental factors. Human Agency considers teachers to have a positive outlook on their job and be effective while taking responsibility for instruction. It should be noted efficacy beliefs are not necessarily personality characteristics but are a cultured and working set of attitudes related to a particular circumstance. In essence, efficacy beliefs can change regarding a particular situation and change due to their environment and settings. Thus, teacher preparation programs are confronted with the difficult job of training teacher to be successful in changing environments.

Bandura (1997) defines perceived self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required [in] producing given attainment" (p.3). This statement entails that an individual with a strong sense of self-efficacy is able to complete any task through planning and execution (Dellinger et al., 2008). In order to accomplish any job or task, a person has to have a comprehensive understanding of exactly what he or she is doing. For example, a physical education teacher needs to understand the scope and sequence of a curriculum if students are to perform to the required standard. The physical education teacher also needs to have knowledge on how to differentiate instruction for learners are various ability levels.

Foundations of Self-Efficacy

An individual's self-efficacy beliefs come from a variety of factors. The self-efficacy of a person can change due to the constant changes that occur in an individual's life. Efficacy beliefs alter due to individual accomplishments or failures related to a performance task, other persons verbally persuading them about beliefs in their abilities, or physiological signs which can display a judgment in their abilities (Bandura, 1997, 1986, 1997). For any person, performance accomplishments usually influence self-efficacy the most (e.g., Bandura, 1986; Bandura, Adams, & Beyer, 1977), and observing another person model specific assignments or behavior (vicarious experience) can influence self-efficacy. Also listening to others giving convincing feedback about an individual's ability (verbal persuasion) can be enlightening.

Bandura (1997) defined verbal persuasion as "persuasive information provided by others regarding one's capabilities that can enhance or hinder self-efficacy beliefs" (as cited in Looney, 2003, p. 21). For a person who is unconvinced of their capabilities for a given task, listening to another person admire their work or giving new approaches to completing the task can give inspire the individual to accomplish their goal. Vicarious experiences allow an individual to observe an experience in order to gain a higher sense of self-efficacy (Silverman & Davis, 2009). Looney (2003) argues that modeling a task does not have specific criterion to gauge success (e.g., teaching) can give an individual an idea of his or her own capabilities. Bandura (1997) suggests a person traditionally evaluates themselves against other similar individuals. Schunk (1987) found that observing a similar individual accomplish a given assignment can boost the self-efficacy of the individual. Observing a similar individual fail on an assignment tends to lessen self-efficacy beliefs and leads to avoidance of the task.

Bandura (1997) stated when a teacher is trying to determine any given ability level, that teacher will rely on four sources of information: performance accomplishments, vicarious experiences, verbal persuasion, and physiological states. Teacher performance is difficult to measure within the profession as there is no scoring rubric to measure a teacher's knowledge, skills and capabilities as they correlate to a diverse class aptitude pool ; instead, teacher performance evaluation may lean toward subjective methodology. One way teacher efficacy can be evaluated somewhat objectively is through the students' progress. For example, a teacher who instructs students with above-average aptitude levels tends to have a higher efficacy level than teachers with students who have inferior aptitude levels (e.g., Ashton et al., 1983; Raudenbush et al., 1992). Guskey (1987) also discovered teacher efficacy levels are more influenced from a group student performance rather than individual student performance. A teacher's sense of self-efficacy is also influenced by other teachers' perceptions. Teachers that are viewed as successful with students who have behavior issues and academic problems, tend to have a higher sense of self-efficacy (Landrum & Kauffman, 1992).

Teacher Efficacy

The research of teacher efficacy started approximately forty years ago. Current research of teacher efficacy -- a teacher's belief in their capability to impact student achievement -- indicates student achievement is affected by a teacher's sense of self-efficacy (Amor et al., 1976; Gibson and Dembo 1984; Woolfolk and Hoy, 1990). The locus of control theory (Rotter, 1966) has an effect on a teacher's sense of self-efficacy Bandura (1986). The locus of control theory has researchers define teacher efficacy through two groupings, general teacher efficacy and personal teacher efficacy. Teachers who believe outside factors influence a child are labeled as general teacher efficacy (GTE) (Ashton, Olejnik, Crocker, & McAuliffe, 1982) while teachers

have confidence in their own abilities to overcome outside factors may make learning challenging for a student have personal teaching efficacy (PTE) (Moran, Hoy, and Hoy, 1998). Using Bandura's self-efficacy theory, research also explores the differences between outcome expectancies and efficacy expectancies (Tucker et. al, 2005).

The locus of control theory investigates an individual's feeling of control over a situation. This theory also explores a person's behavior and how it impacts one's belief about certain events under their control. Rotter (1966) proposes an individual who makes a decision on his or her own has internal loci, while individuals who consider the opinions of others before making a decision have external loci. Rotter also proposes an individual with an external loci usually feels more pressure from work and life anxieties (White, 2009). Teacher efficacy has a deeper meaning than a teacher just being confident in his or her ability instructing students. "A teacher's efficacy belief is a judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated" (Armor et al., 1976; Bandura, 1977).

Bandura (1997) was able to define two major factors according to his theory of efficacy. Outcome expectations assume an individual's behavior will impact and manufacture a particular result. Efficacy expectations are when an individual believes he or she can develop certain actions that will create a desired outcome. Many times, an individual's sense of self-efficacy will affect the beginning of a task and an individual's commitment to completing a task. When an individual has a strong sense of self-efficacy, he or she will usually stay focused on the current task until it is completed despite certain obstacles threatening to derail the current task. An individual with a low sense of self-efficacy will often times avoid undertakings they feel they are not capable of completing (Bandura, 1977; White 2009). Bandura (1977) found all efficacy

beliefs are essentially "future oriented judgments about capabilities to organize and execute the course of action (self-efficacy) required to produce given attainments in specific situations on context (outcome expectancy)" (White, p.14, 2009).

Teacher efficacy was first researched and analyzed through Rotter's social learning theory (Hoy, 2001). In this social learning theory, the Rand measure was developed to assess a teacher's confidence within the classroom. The Rand measure consists of two questions which were designed to question a teacher's beliefs "the consequences of teaching- student motivation and learning- were in the hands of the teacher that is, internally controlled" (Hoy, 2001). Rand researchers asked participants their level of agreement with two statements. The statements read:

> Rand item 1. ''When it comes right down to it, a teacher really can't do much because most of a student's motivation and performance depends on his or her home environment.''
>
> Rand item 2. ''If I really try hard, I can get through to even the most difficult or unmotivated students.''

Teachers who agree with Rand item 1 believe outside factors, including the student's environment outside of school, have much more influence than a teacher does. Moran, Hoy, and Hoy (1998) conclude teachers who agree strongly with this statement believe violence in the community, class, race, and gender have much more power on how students perform academically within the classroom. Teachers who believe outside factors influence a child are labeled as having general teacher efficacy (GTE) (Ashton, Olejnik, Crocker, & McAuliffe, 1982).

Unlike teachers who agree with Rand item 1, teachers who agree with Rand item 2 tend to believe in the power they have as a teacher. These teachers have confidence in their own abilities to overcome outside factors that may make learning challenging for a student (Moran,

Hoy & Hoy, 1998). Often times, many of these teachers have had past success in boosting student achievement and they have been able to develop strategies for obstacles which impede student learning (Moran, Hoy, and Hoy, 1998). Moran, Hoy, and Hoy (1998) labeled this specific aspect of teacher efficacy personal teaching efficacy (PTE).

For the RAND study, the level of agreement with both statements was added together and labeled teacher efficacy (TE). This measure indicated GTE accounted for 24% of variance in student math achievement scores while PTE accounted for an additional 46% of variance in language achievement scores (Moran, Hoy, and Hoy, 1998). Moran, Hoy, and Hoy (1998) go on to comment that it is "perplexing" why PTE has a profound effect on language achievement while GTE affects math achievement. Much of the initial research on teacher efficacy was determined quantitatively. Researchers were able to use numbers to gain an understanding of the self-efficacy levels of teachers (Tschannen-Moran & Hoy, 2001; White, 2009). Despite the complex examinations of teacher efficacy by researchers, teacher efficacy is still not a well-understood concept: the number of variables within teacher efficacy continues to confound analysis.

One of the first qualitative research studies was conducted by Ashton and Webb. Based on Bandura's social cognitive theory, Ashton and Webb were able to create an efficacy diagram which contained different components (Guskey, 1994). Qualitative data such as teacher interviews were the basis for approximately two of the components (Ashton & Webb, 1982; White, 2009). One of the components of the diagram labeled "teacher efficacy" was categorized as a "teacher's outcome expectations concerning the teaching profession itself" (White, p. 16, 2009). The next major advancement in the study of teacher self-efficacy was created by Gibson and Dembo (1984). The intention of this efficacy scale was to assess teacher efficacy through

Ashton and Webb's diagram. The new efficacy scale was revised on several occasions. Elementary teachers from thirteen schools in two school districts were given the 30 item efficacy scale. 208 teachers total were given the efficacy scale and the results reflected Bandura's self-efficacy model, which describes personal efficacy (PE) and teacher efficacy (TE). On this scale, teachers who were able to attain high scores on PE and TE were more likely to persevere on a given task, implement superior educational instruction within their classroom, and use constructive criticism (Gibson and Dembo, 1984).

Another adaptation of Gibson and Dembo's Efficacy Scale was developed by Woolfolk and Hoy (1990). The new efficacy scale asked teachers about their confidence in their teacher preparatory program and the RAND statements. This new scale was given to 182 undergraduate students who had the major of education. 104 students were seeking elementary teacher certification while 78 were attempting to attain secondary certification. The teacher efficacy scale was administered to the participants and the results suggest personal efficacy and teacher efficacy are not correlated (r=.08). This finding suggests these two categories of efficacy are independent.

Teacher Efficacy and Student Achievement

Efficacy and socio-economic status. An "at-risk" student is defined as "a student or groups of students who are considered to have a higher probability of failing academically or dropping out of school" (Abbott, p.1, 2014). Thompson (2004) found a family's income can be an accurate gauge as to how students will perform academically. Children which are from lower socioeconomic status tend to be less ready to learn as opposed to their middle and upper-class peers (Stronge, 2007). Neumann (2003) studied arriving kindergarteners from different SES levels. The results indicated children from a low SES status enter kindergarten having fewer

academic abilities. Eighty-five percent of kindergarten students from a high SES knew the letters of the alphabet as opposed to thirty-nine percent of students from a low SES area.

Students who qualify for Federal Reduced Lunch typically do not score as high on national tests. According to the National Assessment of Educational Progress, on core subjects (reading, writing, math, history and science) students' scores are the highest on the test are students who come from families who have a substantial income. This study is consistent with students across fourth, eighth, and twelfth grades (Thompson, 2004). Free and reduced meal students are also more probable to not finish school (Thompson, 2004). Income and socioeconomic status, in the recent decades, become synonymous with academic success.

Teachers have more of an impact on student success than many realize. Parsley and Corcoran (2003) discovered for at-risk students, teachers have the greatest influence on their academic accomplishments. At-risk students have described their most effective teachers as "warm demanders" (Howard, 2002). These teachers can typically bring out the best of their students through high expectations and a caring attitude. Strong (2007) discovered a solid sense self-efficacy is needed for teachers who instruct at-risk youth. Strong found teachers with a high sense of self-efficacy believe students who come from hardship, no parental support, and other influences have the same academic ability as any other student. Tournaki and Podell (2005) designed a study focused on a teacher's sense of self-efficacy and their expectations of students based on particular student features. The results concluded a teacher with a low efficacy level felt as if they could not assist the student in learning and had a feeling of hopelessness for particular students (Tournaki & Podell, 2005). When Midgley, Feldlaufer, and Eccles (1989) studied student performance of at risk youth and teacher efficacy, they found the results they

hypothesized, low achieving students' academic achievement mirrored the efficacy beliefs of their teacher.

Efficacy and student/teacher engagement. While it is accepted a teacher with a strong sense of self-efficacy can positively impact student learning, efficacy can also impact student and teacher communication. Tucker (2005) discovered a teacher with a low sense of self-efficacy usually have less contact with students of a low SES background. Stronge (2007) analyzed student and teacher communication and found collaboration amongst student and teachers promotes academic achievement and student self-confidence (Stronge, 2007).

A teacher with a strong sense of self-efficacy also attempts to develop positive relationships with each student (Langer, 2000). Many of these teachers believe encouraging relationships with their students prevents many common disciple issues occur within a classroom. Students commented that if they feel the teacher is concerned with their progress and feels appreciated they will accomplish more academically. Improving a teacher's sense of self-efficacy is the emphasis of high-performing schools (Tucker et. al, 2002, Goddard, R. D., et. al., 2004 & Labone, 2004). Parsley and Corcoran (2003) determined a teacher who converses with the children about not only academic problems but also about personal matters increases student achievement.

Teacher efficacy and special education. A teacher with a strong sense of self-efficacy can improve the educational experience of any student, including students with learning disabilities. Recent research suggests a teacher with a strong sense of self-efficacy is less likely to consult with a special education team about referring a student to special education (Coladarci & Breton, 1997; Podell & Soodak, 1993; Soodak & Podell, 1993). As mentioned earlier, a teacher with a strong sense of self-efficacy believes they teach any child, including a student

with learning difficulties. While a strong sense of self-efficacy is advantageous is many aspects, it can be detrimental to a child who requires a teacher with special education training. In addition, Coladarci and Breton (1997) discovered special education teachers with a strong sense of self-efficacy pull students out of the mainstream class for supplemental instruction were content with their position and thought "instructional supervision" was helpful.

Podell and Soodak (1993) examined a teacher's sense of self-efficacy and their choice regarding consulting the special education team about student placement. The study discovered a teacher with a low sense of self-efficacy is more probable to believe a general education setting is not suitable for a student from a low SES background and who is having academic troubles. In another research study conducted by Podell and Lehman (1998), a general educator's sense of self-efficacy and student disability level affected their feelings regarding inclusion. Additionally, general education teachers with a stronger sense of self-efficacy believed their preservice experience as a student-teacher was more useful and practical. These general education teachers also stated they had more success with students who have learning and behavior issues (Brownell & Pajares, 1996, 1999).

Many recent special education studies have focused on teacher burnout. Teacher burnout is the rate of teachers leaving the profession due to occupation unhappiness related to stress or pressure. Up to fifty percent of special education teachers leave the profession after five years and a total of seventy-five percent of teachers leave over the course of ten years (Dage, 2006). In another study, Harris and Mesibov (2003) explored the relationship between self-efficacy of teachers of autistic students and teacher burnout. This study found teachers with a strong sense of self-efficacy remained in their current position longer than teachers with a low sense of self-efficacy.

Efficacy and Years of Service

Efficacy and pre-service teachers. Woolfolk and Hoy (1990) also noted the differences between experienced teacher efficacy beliefs and pre-service teacher efficacy beliefs. Pre-service teachers who were noted as having a low sense of teacher efficacy would often place an emphasis on control when teaching. They also tended to "take a pessimistic view of student's motivation and relied on strict classroom regulations, extrinsic rewards, and punishments to make students study" (Woolfolk & Hoy, 1998, p.235). Pre-service teachers with a higher sense of self-efficacy tended to have higher ratings on instruction, "classroom management, and questioning behavior" by their supervising teacher on their internship evaluation (Saklofske et al., 1988).

General teaching efficacy (GTE) and personal teaching efficacy (PTE) tend to change when pre-service teachers are enrolled in coursework and when their internship has concluded. GTE is more probable to change when pre-service teachers are subjected to vicarious learning experiences or social persuasion, such as university curriculum (Watters & Ginns, 1995). PTE is impacted when pre-service teachers undergo student teaching (Woolfolk and Hoy, 1990). Woolfolk and Hoy (1998) suggest this is because optimistic pre-service teachers are shown the complicated realities of the teaching profession. Woolfolk and Hoy (1998) also make the assertion when student teachers experience a "sudden immersion" of the pre-service experience; it has proved to be detrimental in building teacher competence. Often times, student interns will interact as friends with the students at their school. This will frequently correlate into out-of-control classrooms or harsh teachers who will discipline the students more than necessary. Thus, student interns will often times become disappointed in their performance or disapprove of their "teacher self" (Weinstein & McKown, 1998).

Another study conducted by Hagan, Gutkin, Wilson, and Oates (1998) sought to find whether a teacher's sense of self-efficacy could be influenced by verbal persuasion and vicarious experiences. The control group of the experimental study had preservice teachers watch a videotape on labeling and ill-treatment of students and adults with special needs. The experimental group was able view a video on successful behavior management by general education teachers (vicarious experience), dialogue with the general education teachers about their students and their strategies, and investigate research on behavior management are successful (verbal persuasion). This study found the experimental group had a higher sense of self-efficacy after the experiment.

Efficacy and beginning teachers. For the purpose of this analysis, beginning teachers are considered those who have just completed their first year of teaching. The self-efficacy beliefs of novice teachers tend to reflect stress within the profession and dedication to teaching. It is no surprise beginning teachers who had a strong sense of self efficacy were more likely to have a greater personal fulfillment in teaching and experienced less stress (Moran, Hoy, & Hoy, 1998). Self-assured beginning teachers also noted they had received strong support during their first year. This is unlike beginning teachers who had weak sense of self efficacy. Teachers with a weak sense of self-efficacy who are less positive about what teachers can accomplish in the classroom (Burley et al., 1991; Hall et al., 1992).

Efficacy and experienced teachers. Unlike pre-service or beginning teachers, experienced teachers' efficacy beliefs can be difficult to alter or change (Moran, Hoy, & Hoy, 1998). Ross (1994) analyzed efficacy among experienced teachers and concluded even when experienced teachers are exposed to professional development or new teaching methods, efficacy beliefs change very little. Shockingly, teachers take part in an efficacy professional development

activity will leave the activity with an increased sense of self-efficacy but teacher efficacy beliefs tend to drop in the following weeks after the professional development (Ohmart, 1992).

Change and Efficacy

Change can be tough for individuals. Most times, change causes uneasiness and discomfort. Education is constantly changing and teachers have to keep up increased rigor in state standards. In many school districts, teacher evaluation is now directly correlated with student academic progress. When change is first implemented within a school community, the personal efficacy of the teacher tends to weaken (Moran, Hoy, & Hoy, 1998). Moran, Hoy, and Hoy (1998) also suggest teachers can increase their personal teaching efficacy if "they develop new strategies to cope with the changes and gain evidence of improved student learning." Stein and Wang (1988) conducted a longitudinal study which examined teacher efficacy beliefs when a new instructional program was launched. Stein and Wang found teachers who used the new program within their classrooms and were fully committed to the new program saw an improvement in their self-efficacy beliefs. Conversely, teachers who were not successful implementing the new program had a decline in the teaching efficacy.

Guskey (1988) found confidence does not equate to efficacy. While teachers with a stronger sense of self efficacy are more open to implement new curriculum and adapt to changes, teachers who choose not to adapt or implement new curriculum often have a high level of self-confidence. Guskey (1984) discovered teachers who did not employ an altered teaching practice have a greater level of self-confidence than teachers who did initiate the new teaching practice. Moran, Hoy, and Hoy (1998) conclude "teachers with a great deal of confidence may not feel the need for new strategies and so do not attempt to implement what they have learned.

Teacher Efficacy and School Level

Teacher efficacy levels can vary depending on the type of school (elementary, middle, and high) the instructor is placed in. Traditionally elementary school teachers exhibit a higher sense of self-efficacy over their colleagues in middle and high school (Evan & Tribble, 1986; Midgley, Anderman, & Hicks, 1995). In addition, elementary preservice teachers display more optimistic beliefs than preservice secondary teachers (Evans & Tribble, 1986). Ross (1998) examined the self- efficacy level differences between elementary and secondary teachers. He concludes that since elementary teachers typically spend all day with their students rather than one class period they can examine and witness first-hand the academic growth which occurs.

Taylor (1992) states another reason self-efficacy beliefs tend to be higher among elementary teachers is because secondary teachers often feel student ability cannot be positively influenced. This in turn can force teachers to believe student academic performance cannot change. Also, secondary students tend to be less dependent on teachers and therefore less receptive to teacher influence. Other possible reasons teacher self-efficacy is lower at the secondary level include educators believing the teenage years is a challenging time in an individual's life (Midgley et al., 1998) and gender can impact self-efficacy. The collective efficacy of the school can be influenced due to the fact elementary schools tend to have more female instructors than males and females typically have a higher sense of self-efficacy (Evans & Tribble, 1986). Also, elementary schools tend to display a collegial atmosphere more than secondary schools (Louis, Marks, & Kruse, 1996).

Building Teacher Self-Efficacy and Collective Efficacy

Not only is it the teacher's responsibility to maintain and strengthen his or her own self-efficacy, it is also the school leader's responsibility. It is the principal's duty to strengthen the self-efficacy of his or her teachers. According to research conducted by Skrla and Goddard

(2010) the principal has more influence on teacher self-efficacy than outside factors do. For example, Goddard and Skrla (2006) looked at school characteristics reported by 1,981 teachers and correlated them with teachers' reported levels of efficacy. Less than half the difference in efficacy could be accounted for by factors such as the school's socioeconomic status level, students' achievement level, and faculty experience" (Protheroe, 2008).

School leaders can build teacher self-efficacy through a variety of ways. Hipp (1996) studied 10 middle schools to determine what actions school leaders take that allow for the development of teacher efficacy. Hipp found teachers were allowed to be risk takers often displayed a higher sense of self-efficacy. In addition, Hipp surveyed the teachers of the ten middle schools. The results of the survey indicated teachers with a strong sense of self efficacy saw their principals as "inspiring" (Hipp, 1996). The same teachers also saw their principal as someone who is a part of the "shared vision which centered on creating a student-centered atmosphere" (Hipp, 1996).

Goddard, Hoy, and Hoy (2000, 2006) also state "…mastery experiences are the most powerful efficacy changing forces, they may be the most difficult to deliver to a faculty with a low collective efficacy." This situation can be prevented through professional development activities that are designed to raise the educational community's collective efficacy. "… (School administrators) provide efficacy-building mastery experiences" through "thoughtfully designed staff development activities and action research projects" (Goddard, Hoy, &Hoy, 2000). A study conducted by Egyed and Short (2006) discovered teachers who had additional preparation in behavior management techniques often had a stronger sense of self-efficacy and a lower burnout rate. Another method of building self-efficacy among teachers is to raise the collective efficacy of the school (Goddard & Hoy, 2000). Collective efficacy is defined as "the

perception of teachers in a school that the efforts of the faculty as a whole will have a positive effect on student learning" (Goddard & Hoy, 2000). Building collective efficacy can take time but school leaders can begin build collective efficacy immediately. Goddard, Hoy, and Hoy (2004) discovered there is a positive association between an individual teacher's self-efficacy and collective efficacy.

Ross and Gray (2006) studied how to build collective efficacy within a school. They suggest leaders "Build instructional knowledge and skills; create opportunities for teachers to collaboratively share skills and experience; interpret results and provide actionable feedback on teachers' performance; involve teachers in school decision making" (Ross &Gray, 2006). Goddard, Hoy, and Woolfolk (2000) believe the more people a school leader involves in the decision making process will raise the collective efficacy of the educational institution. The collective efficacy of a school faculty can be raised through both vicarious experiences and social persuasion as well. Goddard, Hoy, and Hoy (2000) believe visits to schools which are highly effective especially when these schools serve a similar population with a like demographic can contribute to building positive collective efficacy. Contrary to Todd Whitaker's (2011) belief to improve student achievement, school administrators must hire great teachers and make the ones they have better (2011), Goddard, Hoy, and Hoy (2000) believe "teachers must also believe that they can successfully meet the challenges of the task at hand".

Summary

The research questions addressed in this dissertation will help connect the research already conducted analyzing teacher self-efficacy beliefs. Not only will I be able to analyze the self-efficacy beliefs among teacher subgroups within an elementary school, but I will also be able to examine the self-efficacy beliefs among teacher age, gender, and a variety of other

categories. Hoy (2001) stressed the need to analyze teacher self-efficacy beliefs among various instructional practitioner roles. This dissertation hopes to answer some of those questions.

CHAPTER 3

Methodology

This chapter will explain the methodology utilized in this study. This chapter will examine the population of the study as well as the research design and the statistical analysis which will be used

This study intended to determine if there is a difference in teacher self-efficacy beliefs among teachers who instruct Virginia SOL state tested subjects and those who instruct Virginia SOL non-state tested subjects. In addition, this study sought to find differences in self-efficacy beliefs among elementary general education teachers and elementary specialists. The Teacher Sense of Self-Efficacy Scale was employed to gauge a teacher's sense of self-efficacy. The Teacher Sense of Self-Efficacy Scale was created by Tschannen-Moran and Woolfolk-Hoy and measures three specific areas related to a teacher's sense of self-efficacy; efficacy for instructional strategies, efficacy for classroom management, and efficacy for student engagement (Tschannen-Moran & Hoy, 2001). Unspecific efficacy levels were not measured in this study since the Teacher Sense of Self-Efficacy Scale is more specific to exact areas of a teacher's sense of self-efficacy. A modified TSES (Appendix A) was created to control for several variables.

Research Questions

The following are the research questions were investigated:

1. How do self-efficacy scores compare in the areas of (a) instructional strategies, (b) student engagement, and (c) classroom management when teachers are placed to instruct an elementary general education classroom vs. serve as an elementary specialist?
2. How do self-efficacy scores compare in the areas of (a) instructional strategies, (b) student engagement, and (c) classroom management when elementary general education teachers are asked to instruct in SOL-tested subjects vs. when they are not?

The purpose of this study was to investigate the impact teaching assignment has on a teacher's sense of self-efficacy and if instructing an SOL tested subject has an impact on a teacher's sense of self-efficacy. In more precise terms, this research wanted to find if there was any relationship between teacher self-efficacy levels and Virginia SOL testing and if there is a relationship among teaching assignment and different self-efficacy levels. This study included teachers from both Title 1 and non-Title 1 schools. The results of this study will hopefully give researchers, educators, and policy makers more knowledge regarding the impact state testing and teaching assignment has on a teachers' self-efficacy levels. It will also benefit higher education institutions and teacher preparatory programs because the results can help influence new curriculum designed to enhance the self-efficacy levels of pre-service teachers based on their current area of study.

Population

This study involved elementary teachers in a large school district in Virginia. 44 participants took part in a voluntary survey. Elementary teachers were chosen in this study since grade Kindergarten, First, Second and Specialists teach Non-SOL tested subjects while grade Third, Fourth, and Fifth teach SOL tested subjects. The participant data is listed in Chapter 4.

Instrumentation

Appendix A is the survey tool that was utilized for this research. This tool includes Anita Hoy's Teacher Sense of Self-Efficacy Scale (TSES), which is a 24 question Likert scale that assesses a teacher's sense of self-efficacy in three main categories; instructional strategies, classroom management, and student engagement. This dissertation was given permission to utilize the TSES by Anita Hoy (Appendix B). In addition to the 24 item format of the TSES, 14 additional responses are required for responders to answer. These allowed for analysis regarding

teacher subgroups and a teacher's sense of self-efficacy within the 3 main categories. The TSES was chosen as well for its reliability when it was first implemented. In Tschannen-Moran and Hoy (2001) "Teacher efficacy: Capturing and Elusive Construct" The following was found:

	Long Form			Short Form		
	Mean	SD	alpha	Mean	SD	alpha
OSTES	7.1	.94	.94	7.1	.98	.90
Engagement	7.3	1.1	.87	7.2	1.2	.81
Instruction	7.3	1.1	.91	7.3	1.2	.86
Management	6.7	1.1	.90	6.7	1.2	.86

Figure 2. TSES Descriptive Statistics

**OSTES is another name for the TSES.*

Data Collection

An online survey was designed and distributed to all elementary teachers in the designated school division. This dissertation was given approval to utilize this specific district for the distribution of the survey. This study includes special education teachers and counselors but not any other teacher that is not listed in the definition section of this proposal. An email was designed that carried the link to the survey tool that was created. The director of program evaluation and research within the designated division distributed the survey via email. Responders were not asked to state their name in this survey therefore maintaining the confidentiality of all participants. One follow up email was sent to gain more participation.

Data Analysis

Research design. This study employs a quantitative method utilizing the Mann-Whitney-Wilcoxon (MWW) test to help determine results. The MWW is the most appropriate method since it investigates the differences in central tendency across two populations (Fay & Proschan, 2010). The research questions in this study address the differences in central

tendency; do teachers have higher self-efficacy scores under certain conditions than under other conditions. The MWW is the most applicable method since it is the non-parametric version of a t-test (Fay & Proschan, 2010). To completely understand why it is appropriate to utilize non-parametric statistics, several key concepts need to be reviewed.

Types of Data

Parametric vs. Non-Parametric statistics. Parametric statistics are based on parameterized models and their associated distributions. In other words, confidence intervals, hypothesis tests, z-scores, and p-values are benchmarks of parametric statistics. Non-parametric statistics are a subdivision of statistics that makes no distribution assumptions. For instance, non-parametric methods do not depend on data from any individual distribution. The widest use of non-parametric representations is for data that is in a ranked order (Fay & Proschan, 2010). **Nominal,** or **categorical** data, have no quantitative value. For example, a characterization of students as belonging to School District A or School District B would involve categorical data (Sprinthall, 2012). **Ordinal** data have a quantitative value, but only the *ranks* of the data are meaningful. For example, data on the order of finish in a road race, where there is no finishers' times but there is record of who finished first, second, third, etc. are ordinal data. It is important to note that there is no information about *intervals* when using ordinal data. In other words, I do not know the distance between 1st and 2nd, between 2nd and 3rd, etc. (Sprinthall, 2012). **Interval** data gives information not intervals, or the distance between data points. For example, if a certain event happened in the year 1900, again in 1950, and again in 2000, I know the two involved *intervals* are quantitatively the same (50 years) (Sprinthall, 2012). Finally, **ratio** data is data in which ratios, as well as intervals, are meaningful. For example, if a particular student receives 80 points on a particular assignment, and other receives 40 points, I know the first

student received twice as many points as the second. Moreover, the ratio of the first score to the second (2:1, in this instance) is meaningful (Sprinthall, 2012).

Mann-Whitney-Wilcoxon Test

The MWW test is the most appropriate test for this research design for a variety of reasons. Due to the nine-point Likert Scale (TSES) which is being used, it represents ordinal data. Since the TSES is both numerical and labeled (ex. 1 is associated with "Nothing;" 3 is associated with "Very Little;" 5 is associated with "Some Influence;" 7 is associated with "Quite a Bit;" and 9 is associated with "A Great Deal") the analyzer loses the ability to treat the data as anything but ordinal. For example, the analyzer cannot assume a score of "Very Little" which has a numerical value of 3 is triple the value of a label "Nothing" or a score of 1.

Even if this research assumed Likert scales represent interval data, the use of the MWW test would still be appropriate. Non-parametric statistics can still be used for interval and ratio data sets since non-parametric statistics are less influenced by outliers. Also, non-parametric statistics do not require assumptions about the homogeneity of variances and independent samples whereas parametric statistics usually do (Hoskin, 2011). The MWW is the benchmark test of non-parametric statistics when attempting to examine the differences in central tendency across two populations. Both research questions center around differences in central tendency (do teachers have higher self-efficacy scores under certain conditions than under other conditions).

The MWW test traditionally assumes there are little to no "ties" within the data (when two or more data points have identical ranks). Ties are remedied by assigning ranks to each data point. This ensures each identical data point has an identical rank and the sum of the ranks is constant. This dissertation is assuming there will be many "ties" within the data due to identical

answers for identical questions. Since ties may affect the results of the MWW test, a few corrections have been made. For instance, in a large sample size, the MWW test has a normal distribution. Figure 2 below displays n_1 and n_2 as the sample sizes of our two samples. The mean of the related normal distribution is $n_1n_2/2$. The usual formula for the standard deviation of the related normal distribution is:

$$\sigma_U = \sqrt{\frac{n_1 n_2 (n_1 + n_2 + 1)}{12}}.$$

However, when there are many ties, it is necessary to correct this formula as follows:

$$\sigma_{corr} = \sqrt{\frac{n_1 n_2}{12}((n+1) - \sum_{i=1}^{k} \frac{{t_i}^3 - t_i}{n(n-1)})}$$

Figure 3: *MWW test correction with "ties" in the data.*

Summary

Utilizing the MWW test will give a z score, which will help with the conduction of a hypothesis test. Based on the results of the MWW, the z score, and the hypothesis, I will be able to determine if there are differences in teacher self-efficacy in the areas of classroom management, instructional strategies, and student engagement. The z score will help me determine whether I can reject or fail to reject the null hypothesis. From this point, appropriate conclusions will be made and analysis of the results will occur. The limitations will be listed in the dissertation as well as recommendations for future research.

CHAPTER4

Results

Introduction

The primary purpose of this dissertation was to explore the differences in self-efficacy beliefs among elementary classroom teachers and elementary specialists as well as investigating any differences in self-efficacy beliefs among elementary general education teachers who administer a state test versus elementary general education teachers who do not administer a state test. The Virginia Standards of Learning Assessment (SOL) was used as this dissertation's state test. In addition, this study sought to find a possible link among teacher self-efficacy beliefs and high-stakes assessment at the elementary level which would lead to more research that explores a root cause of why self-efficacy differences exist. This chapter provides an overview of the results of this dissertation and is structured by research question.

The research questions were the following:

1. How do self-efficacy scores compare in the areas of (a) student engagement, (b) instructional strategies, and (c) classroom management when teachers are placed to instruct an elementary general education classroom vs. serve as an elementary specialist?
2. How do self-efficacy scores compare in the areas of (a) student engagement, (b) instructional strategies, and (c) classroom management when teachers are asked to instruct in SOL-tested subjects vs. when they are not?

The participant data contain three sub-groups: (1) Generalists assigned to SOL-tested subjects (Generalist (SOL), (2) Generalists not assigned to SOL-subjects (Generalist (non-SOL)) and (3) Specialists. The use of the non-parametric Mann-Whitney Wilcoxon (MWW) test

requires that each research question consider only two samples. For purposes of analyzing the research questions, the following sub-groups were mapped to find samples within the research questions as follows:

Table # 2:

Research Questions and Sample Population

RQ	Research Question	Sample 1	Sample 2
1	How do self-efficacy scores compare in the areas of (a) student engagement, (b) instructional strategies, and (c) classroom management when teachers are placed to instruct an elementary general education classroom vs. serve as an elementary specialist?	All Generalists (sub-groups 1 and 2)	Specialists (sub-group 3)
2	How do self-efficacy scores compare in the areas of (a) student engagement, (b) instructional strategies, and (c) classroom management when teachers are asked to instruct in SOL-tested subjects vs. when they are not?	Generalists (SOL) (sub-group 1)	Generalists (non-SOL) (sub-group 2)

The rationale for these mappings is as follows. RQ#1 specifically cites general education as opposed to elementary specialist settings and instructors. It makes no mention of SOL vs. non-SOL tested subjects. Therefore, all generalists in Sample 1 and all specialists in Sample 2. By contrast, RQ#2 specifically cites SOL vs. non-SOL tested subjects, without regard to

generalist vs. specialist designation. However, specialists do not teach SOL-tested subjects. To ensure that the RQs are properly separated, and that the specialist designation does not become a confounding variable in RQ#2, I controlled for this designation by considering generalists only in that RQ.

Demographic Data for Teacher Participants

A total of 45 teachers from a school division in Virginia participated in this study. One participant's survey had to be discarded due to respondent error leaving the new total at 44 participants. All of the participants are teachers who are currently certified to instruct the subject area that they teach. The demographic data collected through the Teacher Sense of Self-Efficacy Scale (TSES) survey was analyzed to display the diverse participant demographics, a summary can be found on Table 4.

Table 3

Participant Demographics

Demographic	Elementary General Education Teachers (K-2)	Elementary General Education Teachers (3-5)	Elementary Specialists	Percent
Teacher Type	18	16	10	
Gender:				
Male	1	1	3	11
Female	17	15	7	89
Certification:				
Provisional	1	1		5
Professional	17	14	10	93
National Board Certified	0	1		2
Mean years of	15	13	11	

teaching experience				
Highest Degree Received				
Bachelor's	7	5	4	36
Masters	9	10	4	52
Master's +30	2	0	0	5
Educational Specialist	0	1	2	7
Doctorate	0	0	0	
Title 1 School:				
Yes	14	6	6	59
No	4	10	4	41

Of the 44 participants, 11% were male and 89% were female with 60% of the male teachers identified themselves as specialists. Teachers who participated in this study held an assorted number of certifications. The majority of the participants (93%) held a standard professional teaching certificate while 1 person held National Board Certification and 2 elementary general education teachers had provisional certificates. 36% of the respondents hold a bachelor's degree while the majority of the participants hold a master's degree. Two respondents claim to have their master's degree plus 30 credits while 3 participants hold an educational specialist degree (Ed.S). No participants hold a doctorate. Years of teaching experience varied in range. Years of experience for Elementary General Education Teachers (K-2) has a mean of 15 years while Elementary General Education Teachers (3-5) had a mean of 13 years. Elementary Specialists had a mean of 11 years of teaching experience. 59% of the participants teach in a Title 1 school while 41% teach in non-title one schools.

Descriptive Statistics

The Teacher Sense of Efficacy Scale (TSES) is a scale that was developed in 2001 by Tschannen-Moran and Hoy. This scale assesses a teacher's sense of efficacy by measuring their beliefs based on specific questions. The 24- item version (Long Format) of this scale was used to collect teacher sense of efficacy data in this research. A nine-point Likert type scale was used for each item with 1= nothing, 3= very little, 5 = some influence, 7 = quite a bit, and 9 = a great deal. Higher scores indicate a stronger sense of self-efficacy and low scores indicate little or no sense of efficacy.

The TSES has eight questions that measure efficacy of instructional strategies, eight that measure efficacy of classroom management, and eight that measure efficacy of student engagement. Efficacy in instructional practices was made up of questions 7, 10, 11, 17, 18, 20, 23, and 24. The dimension concerning efficacy in student engagement was made up of questions 1, 2, 4, 6, 9, 12, 14, and 22. Lastly, efficacy in classroom management was made up of questions 3, 5, 8, 13, 15, 16, 19, and 21. The eight items related to instructional strategies, eight items related to student engagement, and the eight items related to classroom management were considered as independent data points for purposes of this analysis (see Table 5).

Table 4

Question Number and Response Mean

Question Number and Category	Elementary General Education Teachers (K-2) Response Mean	Elementary General Education Teachers (3-6) Response Mean	Elementary Specialist Response Mean
Efficacy in Student Engagement			
1	7	7	7
2	7	7	7

4	6	8	7
6	7	8	8
9	7	8	7
12	7	8	8
14	7	7	7
22	7	8	6
Efficacy in Instructional Strategies			
7	7	8	8
10	8	8	7
11	7	8	7
17	8	8	7
18	7	8	7
20	8	8	8
23	7	8	7
24	7	8	8
Efficacy in Classroom Management			
3	7	8	8
5	8	9	8
8	8	9	8
13	7	8	8
15	7	7	7
16	8	8	8
19	7	7	7

21	6	7	7

Likert scales are most amenable to non-parametric analysis. Likert scales are ordinal. Non-parametric tests, such as MWW, are clearly indicated for ordinal data (Lamorte, 2016). This is because the order of the data have meaning, but the numbers themselves do not have meaning. For example, in the TSES, presenting traditional (parametric) statistics would implicitly assume that "very little" (3) is in some sense "three times as much self-efficacy" as "nothing," whereas "a great deal (9) is similarly "three times as much self-efficacy" as "very little." There is no basis for assigning these values. In fact, the scale could have as easily labeled the nine point Likert scale with the letters A through I, rather than the integers 1-9, and presumably obtained the same results. Letters cannot be summed or averaged; the same argument applies to these numbers. In addition the scale could also, just as easily, have used a five-point Likert scale, with the five levels indicated above corresponding to the integers 1-5. Using that scale, "a great deal" would be "five times as much self-efficacy" as nothing, rather than nine times as much. In any case, using common English, most respondents would presumably associate "nothing" with a value of zero, rather than a value of one. All of these considerations argue for the use of a non-parametric test. The appropriate non-parametric test for a difference in central tendency is MWW, so that test is used here.

An important assumption made is that the responses to each question are independent. This is a significant limitation of the analysis, because the same individual (in each survey) was responding to all 24 questions. However, independent data points are a fundamental assumption of both parametric and non-parametric tests, and it was necessary to make this assumption to proceed. There was no readily apparent way to avoid this assumption with a non-parametric test:

had each survey acted as a single, independent data point, a single score would have been needed to assign (within each RQ) to each survey. The most logical way to assign such a score would be to average the scores, but calculating an average presupposes that the data have cardinal, rather than simply ordinal values.

While no parametric tests were used in the main analysis, I applied a standard t-test for a difference in means as an *ex post facto* analysis to cross-check results. Similarly, while the main analysis did not involving calculating any sums, means, or standard deviations, I have reported these numbers here for statistical completeness. I also used a parametric test as a cross-check of the assumption of independent responses. If responses are independent, one would expect the variance across all responses to be roughly equal to the variance of responses within any particular survey. There were 44 surveys to analyze, and thus 44 F-tests for equality of variances to perform. The results of these tests are summarized in Table 6 below (note that, while the surveys are numbered from 1-45, there are only 44 data points, as Survey 4 was eliminated from the analysis as an invalid data point).

The table presents the variance across all responses and the variance within each of the 44 surveys. It then calculates F-statistics (as the ratio of with within-survey variance to the entire-sample variance). It then reports the associated p-values, as each F-statistic follows an F distribution with (24-1,24*44-1) = (23,1055) degrees of freedom. Finally, it determines whether the difference is significant at the 0.05 level, using a one-tailed test. A one-tailed test is appropriate here because of the concern that responses within a survey might have *lower*, not higher, variation that responses across all surveys. In the "SIG?" column, a value of 1 indicates significance, and a value of 0 indicates that the difference is not significant, at the 0.05 level.

Table 6

Variance Within Surveys

ITEM	VALUE	F-STAT	P-VALUE	SIG?
Variance Among All Responses	1.70			
Variance Within Survey 1	1.52	0.90	0.395	0
Variance Within Survey 2	0.51	0.30	0.001	1
Variance Within Survey 3	0.51	0.30	0.000	1
Variance Within Survey 5	1.38	0.81	0.279	0
Variance Within Survey 6	4.17	2.45	1.000	0
Variance Within Survey 7	0.67	0.39	0.004	1
Variance Within Survey 8	2.06	1.21	0.776	0
Variance Within Survey 9	1.59	0.94	0.454	0
Variance Within Survey 10	0.58	0.34	0.001	1
Variance Within Survey 11	1.04	0.61	0.076	0
Variance Within Survey 12	1.30	0.76	0.221	0
Variance Within Survey 13	1.04	0.61	0.079	0
Variance Within Survey 14	0.95	0.56	0.046	1
Variance Within Survey 15	1.04	0.61	0.079	0
Variance Within Survey 16	0.46	0.27	0.000	1
Variance Within Survey 17	1.61	0.95	0.466	0
Variance Within Survey 18	1.24	0.73	0.186	0
Variance Within Survey 19	0.78	0.46	0.013	1
Variance Within Survey 20	1.09	0.64	0.097	0

Variance Within Survey 21	1.94	1.14	0.710	0
Variance Within Survey 22	1.30	0.77	0.225	0
Variance Within Survey 23	0.78	0.46	0.013	1
Variance Within Survey 24	1.03	0.61	0.072	0
Variance Within Survey 25	0.52	0.31	0.001	1
Variance Within Survey 26	1.04	0.61	0.079	0
Variance Within Survey 27	1.22	0.72	0.167	0
Variance Within Survey 28	0.87	0.51	0.027	1
Variance Within Survey 29	1.76	1.04	0.587	0
Variance Within Survey 30	1.71	1.01	0.548	0
Variance Within Survey 31	1.74	1.02	0.569	0
Variance Within Survey 32	0.34	0.20	0.000	1
Variance Within Survey 33	2.64	1.55	0.953	0
Variance Within Survey 34	0.04	0.02	0.000	1
Variance Within Survey 35	0.59	0.35	0.002	1
Variance Within Survey 36	1.28	0.75	0.206	0
Variance Within Survey 37	0.60	0.35	0.002	1
Variance Within Survey 38	2.98	1.76	0.985	0
Variance Within Survey 39	1.12	0.66	0.115	0
Variance Within Survey 40	0.43	0.26	0.000	1
Variance Within Survey 41	1.21	0.71	0.164	0
Variance Within Survey 42	0.86	0.51	0.026	1
Variance Within Survey 43	1.30	0.77	0.227	0

Variance Within Survey 44	1.17	0.69	0.141	0
Variance Within Survey 45	0.90	0.53	0.033	1
Percentage Significantly Different				**39%**

As one might expect, the results above are mixed, with some surveys' variances testing as significantly different from the overall sample, and some testing as not significant. I would expect roughly 5% of the surveys to test as significantly different by chance, at the 0.05 level. In this instance, 39% of the surveys tested as having significantly lower variances than the overall sample. This is certainly a cause for concern, and is a legitimate limitation of the analysis. However, the majority of surveys' variances test as not significantly different as the overall sample, and some of the surveys (e.g. Surveys 6, 8, 33, and 38) exhibit *higher* variances than the overall sample. In any case, averaging or simply considering the median response would have *masked* these within-survey variations. Finally, I acknowledge that the F-test for difference in variances is a parametric test, whereas the main analysis treats the data as non-parametric. Table 7 below presents high-level descriptive statistics concerning Research Question 1, which pertains to perceived self-efficacy of generalists vs. specialists.

Table 5:

Research Question 1 Mean and Standard Deviation Scores, by Sample

SELF-EFFICACY DIMENSION	GENERALIST MEAN	SPECIALIST MEAN	POOLED STANDARD DEVIATION
Student Engagement	7.17	6.88	1.29
Instructional Strategies	7.56	7.20	1.20
Classroom Management	7.44	7.28	1.37

Table 8 below presents high-level descriptive statistics concerning Research Question 2, which pertains to perceived self-efficacy of generalist teachers placed in SOL-tested vs. non-SOL-tested subjects.

Table 6:

Research Question 2 Mean and Standard Deviation Scores, by Sample

SELF-EFFICACY DIMENSION	GENERALIST (SOL) MEAN	GENERALIST (NON-SOL) MEAN	POOLED STANDARD DEVIATION
Student Engagement	7.48	6.88	1.27
Instructional Strategies	7.84	7.31	1.17
Classroom Management	7.79	7.14	1.36

These are surprising results. My hypothesis was the pressure of teaching to SOL-tested subjects would be associated with lower teacher self-efficacy, and that specialists (who are generally exempt from SOL testing) would enjoy higher self-efficacy than their generalist counterparts. A cursory view of the descriptive statistics indicates the *opposite* trend, in both cases. The next step was to analyze whether these differences are significant, using the MWW non-parametric test.

Non-Parametric Descriptive Statistics

In non-parametric analysis, the researcher treats the data as ordinal as consider the *ranks* of the data, rather than the data themselves. By convention, the researcher assigns the lowest rank index number to the highest value (i.e., in a case with no "ties", the highest number would

receive a rank of 1, the 2nd highest number would receive a rank of 2, and the lowest number would receive a rank of n). In this instance, however, there are only nine possible responses to each question, and therefore, many "ties" are expected (responses of the same value, and therefore identical ranks) in the data. The first step is to calculate the rank of each data point in the case of a tie.

Let n_i be the total number of responses tied for rank *i*. If the group that is considered the highest-ranking group (i.e. each data point is "tied" for the highest value), and each such data point were ranked individually, then the sum of the ranks would be $n_i(n_i+1)/2$. The researcher desires for each "tied" data point to have the same rank, so this means that each one should receive the rank of $[n_i(n_i+1)/2]/n_i = (n_i+1)/2$. For example, in RQ 1(a), there are 69 responses tied with the highest possible value (9). Each one is assigned a rank of (69+1)/2 = 35.

For subsequent groups with ties, the ranks of each data point is calculated similarly. However, the researcher must "start counting" where the prior ranks stopped. For example, in RQ 1(a), there are 49 responses tied with 2nd highest possible value (8). If this were the highest-ranking group, then each one would be assigned a rank of (49+1)/2 = 25. However, it is necessary to "start counting" at 70, because the data points ranked 1-69 are reflected in the prior group. This means that 69i= is added to each implied rank. Thus, each data point in this group receives an implied rank of 25 + 69 = 94. In general, each data point in each group receives a rank of $c_{i-1} + (n_i+1)/2$, where c_{i-1} is the cumulative number data points already ranked prior to group i, and ni is the number of data points tied for rank *i*.

Using these conventions, Table 10 displays the following non-parametric descriptive statistics for each component of research question 1, pertaining to generalists vs. specialists. Note that each component contains 44*8 = 352 responses.

Table 7:

Research Question 1 Distribution of Responses

RQ	DIMENSION	NUMBER TIED WITH THIS RANK	IMPLIED RANK
1a	Student Engagement: Response of 9	69	35
1a	Student Engagement: Response of 8	49	94
1a	Student Engagement: Response of 7	133	185
1a	Student Engagement: Response of 6	54	278.5
1a	Student Engagement: Response of 5	45	328
1a	Student Engagement: Response of 4	1	351
1a	Student Engagement: Response of 3	0	
1a	Student Engagement: Response of 2	1	352
1a	Student Engagement: Response of 1	0	

1b	Instructional Strategies: Response of 9	88	44.5
1b	Instructional Strategies: Response of 8	77	127
1b	Instructional Strategies: Response of 7	132	231.5
1b	Instructional Strategies: Response of 6	31	313
1b	Instructional Strategies: Response of 5	20	338.5
1b	Instructional Strategies: Response of 4	2	349.5
1b	Instructional Strategies: Response of 3	2	351.5
1b	Instructional Strategies: Response of 2	0	
1b	Instructional Strategies: Response of 1	0	
1c	Classroom Management: Response of 9	105	53
1c	Classroom Management: Response of 8	60	135.5
1c	Classroom Management:	103	217

	Response of 7		
1c	Classroom Management:	52	294.5
	Response of 6		
1c	Classroom Management:	24	332.5
	Response of 5		
1c	Classroom Management:	5	347
	Response of 4		
1c	Classroom Management:	3	351
	Response of 3		
1c	Classroom Management:	0	
	Response of 2		
1c	Classroom Management:	0	
	Response of 1		

For Research Question 2, the same process applies. However, the question considers only generalists in this RQ. Recall that, of the 44 responses received, 34 were from generalists and 10 were from specialists. This implies that each subpart of this RQ will be associated with 34*8 = 272 responses.

Table 8:

Research Question 2 Distribution of Responses

RQ	DIMENSION	NUMBER TIED WITH THIS RANK	IMPLIED RANK
2a	Student Engagement:	58	29.5

	Response of 9		
2a	Student Engagement:	39	78
	Response of 8		
2a	Student Engagement:	103	149
	Response of 7		
2a	Student Engagement:	38	219.5
	Response of 6		
2a	Student Engagement:	32	254.5
	Response of 5		
2a	Student Engagement:	1	271
	Response of 4		
2a	Student Engagement:	0	
	Response of 3		
2a	Student Engagement:	1	272
	Response of 2		
2a	Student Engagement:	0	
	Response of 1		
2b	Instructional Strategies:	74	37.5
	Response of 9		
2b	Instructional Strategies:	64	106.5
	Response of 8		
2b	Instructional Strategies:	96	186.5
	Response of 7		

2b	Instructional Strategies: Response of 6	20	244.5
2b	Instructional Strategies: Response of 5	16	262.5
2b	Instructional Strategies: Response of 4	0	
2b	Instructional Strategies: Response of 3	2	271.5
2b	Instructional Strategies: Response of 2	0	
2b	Instructional Strategies: Response of 1	0	
2c	Classroom Management: Response of 9	85	43
2c	Classroom Management: Response of 8	48	109.5
2c	Classroom Management: Response of 7	77	172
2c	Classroom Management: Response of 6	37	229
2c	Classroom Management: Response of 5	18	256.5
2c	Classroom Management:	4	267.5

	Response of 4		
2c	Classroom Management:	3	271
	Response of 3		
2c	Classroom Management:	0	
	Response of 2		
2c	Classroom Management:	0	
	Response of 1		

Research Question 1

This question compares self-efficacy of generalists to specialists across three dimensions. As stated previously, generalists compose 34 of the 44 survey respondents (77%), whereas specialists compose 10 respondents (23%). Each survey response includes eight questions per dimension, so that the total number of data points within each dimension is 44*8=352. From this it follows that the total sum of ranks is 352*353/2 = 62,128. Thus, the expected (under the null hypothesis) sum of ranks among generalists 77% of 62,128, or 48,008, and the expected sum of ranks among specialists is 23% of 62,128, or 14,120. The table below compares expected to actual sums of ranks for each of the three dimensions within RQ1.

The *overall* sum of ranks is constant, thus only one comparison of the two sub-samples' sum of ranks to its expected value—the other sub-sample's sum of ranks will exactly offset this delta. For convenience, I chose to display the *specialist* sums of ranks. The *expected* sum of ranks for each dimension is **14,120**.

Table 9

Dimension, Sum of Ranks, and the Delta from the Expectation

DIMENSION	SUM OF RANKS	DELTA FROM EXPECTATION
Student Engagement	15,595	1,475
Instructional Strategies	16,104	1,984
Classroom Engagement	15,088	968

Research Question 1 Distribution of Responses

Of note, each delta is *positive*. Higher numbers (higher self-efficacy scores) are associated with lower rank index numbers (e.g., with no ties, the highest score would receive a rank of 1, which is the lowest rank index number). Therefore, positive deltas among the specialists in sums of ranks are consistent with *lower* than expected self-efficacy. Thus, the table above is consistent with the parametric cross-check descriptive statistics.

Research Question 2

This question compares self-efficacy of SOL to non-SOL-type instructors among generalists, across the same three dimensions. Among the 34 generalists, 16 (47%) are SOL instructors and 18 (53%) are non-SOL instructors. Each survey response includes eight questions per dimension, so that the total number of data points within each dimension is 34*8=272. From this it follows that the total sum of ranks is 272*273/2 = 37,128. Thus, the expected sum of ranks among SOL generalists is 47% of 37,128, or 17,472, and the expected sum of ranks among non-SOL generalists is 53% of 37,128, or 19,656. The table below compares expected to actual sums of ranks for each of the three dimensions within RQ2.

Table 10

Research Question 2 Distribution of Responses

DIMENSION	SUM OF RANKS	DELTA FROM EXPECTATION

Student Engagement	21,884	2,228
Instructional Strategies	21,811	2,155
Classroom Engagement	22,038	2,382

Research Question 2 Distribution of Responses

Again, each delta is *positive*. Recall that higher numbers (higher self-efficacy scores) are associated with lower rank index numbers (e.g., with no ties, the highest score would receive a rank of 1, which is the lowest rank index number). Therefore, positive deltas among the non-SOL generalists in sums of ranks are consistent with *lower* than expected self-efficacy. Accordingly, the table above is consistent with the parametric cross-check descriptive statistics. The next step is to test to see whether these differences, appearing as they do in the opposite direction of what was anticipated, are statistically significant using the MWW protocol.

Analysis Based on MWW Test

As stated previously, the use of MWW assumes independent observations and that the data is ordinal. The null hypothesis is that the medians of the underlying self-efficacy scores are equal across sub-samples. The alternative hypothesis, as originally formulated, was that median self-efficacy is greater among specialists and non-SOL-type instructors. However, based on the direction of deltas in the descriptive statistics previously presented, I also tested to see if there are significant differences to indicate that *generalist* and *SOL-type instructor* self-median self-efficacy is greater.

Research Question 1

This question pertains to differences in self-efficacy between generalists and specialists. Significant p-values (at the 0.05 level) are bolded.

Table 11

Descriptive Statistics of Research Question 1

DIMENSION (RQ)	U	m	s	Z-Score	P-Value
Student Engagement (1a)	9,405	10,880	772	-1.91	**0.028**
Instructional Strategies (1b)	8,896	10,880	768	-2.58	**0.005**
Classroom Engagement (1c)	9,913	10,880	776	-1.25	0.106

Research Question 2

This question pertains to differences in self-efficacy between SOL-type generalists and non-SOL-type generalists. Significant p-values (at the 0.05 level) are bolded.

Table 12

Descriptive Statistics of Research Question 2

DIMENSION (RQ)	U	m	s	Z-Score	P-Value
Student Engagement (2a)	6,989	9,216	624	-3.57	**0.000**
Instructional Strategies (2b)	7,061	9,216	622	-3.47	**0.000**
Classroom Engagement (2c)	6,835	9,216	627	-3.80	**0.000**

Conclusions

In five of six cases, the results are significant in the opposite direction of what was anticipated, with generalists displaying higher self-efficacy than specialists, and SOL-type generalists displaying higher self-efficacy than non-SOL-type generalists. In the sixth case

(classroom engagement for generalists vs. specialists), generalists again display higher self-efficacy, though the difference is not significant.

Because of the counterintuitive nature of these results, I cross-checked them using a standard z-test for difference in means. This test treats the data as ratio (rather than ordinal), in contrast to one of the foundational assumptions. I used the z-test rather than a t-test because I have statistically large samples. This test is not part of the main analysis, but was provided as a cross-check. This cross-check also allows me to verify the *direction* of the differences. By convention, in the t-tests, higher self-efficacy scores for generalists (RQ1) and SOL-type generalists (RQ2) are associated with *positive* z-scores; higher self-efficacy scores for specialists and non-SOL-type instructors are associated with *negative* z-scores. I assumed that the two sub-samples have equal variances.

Here, the z-score is calculated as $d / [s_p*(1/n_1 + 1/n_2)^{0.5}]$, where *d* is the difference in sample means, *n1* and *n2* are the sample sizes and s_p is the pooled standard deviation.

The results of the z-test cross-check, shown below are the results for RQ1.

Table 13

Cross Check Test Results

DIMENSION (RQ)	**Generalist Mean**	**Specialist Mean**	**d**	**s_p**	**$(1/n_1+1/n_2)^{0.5}$**	**Z-Score**	**P-Value**
Student Engagement (1a)	7.17	6.88	0.29	1.29	0.127	1.77	**0.039**
Instructional Strategies (1b)	7.56	7.20	0.36	1.20	0.127	2.36	**0.009**

Classroom Engagement (1c)	7.44	7.28	0.16	1.37	0.127	0.97	0.166

Similarly, here are the results for RQ2:

Table 14

Research Question 1 Parametric Z-Test Cross-Check Results

DIMENSION (RQ)	**SOL Mean**	**Non-SOL Mean**	**d**	**s_p**	**$(1/n_1+1/n_2)^{0.5}$**	**Z-Score**	**P-Value**
Student Engagement (1a)	7.48	6.88	0.60	1.27	0.121	3.89	**0.000**
Instructional Strategies (1b)	7.84	7.31	0.53	1.17	0.121	3.68	**0.000**
Classroom Engagement (1c)	7.79	7.14	0.65	1.36	0.121	3.95	**0.000**

The cross-check results confirm the MWW results, with generalists and SOL generalists displaying greater self-efficacy than their specialist and non-SOL-type counterparts, respectively. Once again, this difference is statistically significant (at the 0.05 level) in five of six cases. In the remaining case, Generalist vs. Specialist Classroom Engagement, generalists also have a higher mean self-efficacy score, though the difference is not significant. Thus, the parametric cross-checks confirm the non-parametric results.

Chapter 5

Conclusion, Discussion, Implications for Practice, and Recommendations for Future Research

Teacher self-efficacy beliefs have been studied in great depth since Bandura (1977) explained social cognitive theory. Teacher self-efficacy beliefs have been proven by researchers to influence student academic performance. A teacher's ability to believe that he or she can positively or negatively impact change is a crucial foundation that Bandura addresses. Research in the field of teacher self-efficacy has been expansive and extensive with new research showing how teacher self-efficacy changes throughout the career of a teacher.

The purpose of this study was to examine the differences in teacher self-efficacy beliefs among elementary general education classroom teachers and elementary specialists. In addition, this study also sought to find a possible connection among teacher self-efficacy beliefs and high stakes assessment. Specifically, this study sought to find the differences in self-efficacy beliefs among elementary general education teachers who instruct SOL test subjects (grade 3-5) and elementary general education teachers who do not instruct SOL tested subjects (grades K,1,2). I utilized Anita Hoy's Teachers Sense of Self-Efficacy Scale (TSES) as a survey instrument to measure self-efficacy in categories: efficacy in instructional strategies, efficacy in student engagement, and efficacy in classroom management. This study focused on factors that will help find differences in self-efficacy among various teacher groups within an elementary school. The following are the research questions that influence this dissertation:

1. How do self-efficacy scores compare in the areas of (a) student engagement, (b) instructional strategies, and (c) classroom management when teachers are placed to instruct an elementary general education classroom vs. serve as an elementary specialist?

2. How do self-efficacy scores compare in the areas of (a) student engagement, (b) instructional strategies, and (c) classroom management when teachers are asked to instruct in SOL-tested subjects vs. when they are not?

This chapter provides a synopsis of the findings resulting from the analysis of the two research questions stated above. Conclusions made from the results of this study are also explored. Recommendations based on this study are also presented. This chapter will be organized into the following sections: Summary of Findings, Recommendations, Limitations, Implications for Further Study, and Conclusions.

Discussion of Teachers Responses

The responses to the survey instrument (TSES) provided a picture of the efficacy levels for each teacher group. Each question number and category was mapped in Table 13 along with the mean response for each question for each group. Every group had different high and low scores. From Table 13, one can infer that Elementary General Education Teachers (3-5) had higher efficacy levels overall than the other two groups. In fact, for question numbers 5 and 9 (related to classroom management) Elementary General Education Teachers (3-5) had a mean response of 9 which was the highest score possible and highest score recorded among any question. Elementary General Education Teachers (3-5) also had no response average less than 7 while the other two groups had question responses that did average a 6.

Table 15

Response Number and Mean

Question Number and Category	Elementary General Education Teachers (K-2) Response Mean	Elementary General Education Teachers (3-5) Response Mean	Elementary Specialist Response Mean

Efficacy in Student Engagement	**6.9**	**7.6**	**7.1**
1	7	7	7
2	7	7	7
4	6	8	7
6	7	8	8
9	7	8	7
12	7	8	8
14	7	7	7
22	7	8	6
Efficacy in Instructional Strategies	**7.4**	**8**	**7.4**
7	7	8	8
10	8	8	7
11	7	8	7
17	8	8	7
18	7	8	7
20	8	8	8
23	7	8	7
24	7	8	8
Efficacy in Classroom	**7.3**	**7.9**	**7.6**

Management

3	7	8	8
5	8	9	8
8	8	9	8
13	7	8	8
15	7	7	7
16	8	8	8
19	7	7	7
21	6	7	7

Efficacy in Student Engagement

For Efficacy in Student Engagement, Elementary General Education Teachers (3-5) had 5 question responses that averaged 8. Elementary General Education Teachers (K-2) had no responses that averaged above 7 with question 4 averaging 6. Elementary Specialists had two responses that averaged an 8 with one question (number 22) averaging a 6. It can be concluded from this that Elementary General Education Teachers (3-5) may feel more comfortable designing lessons or providing instruction that is engaging rather than their counterparts. More research will need to be conducted in order to determine the exact reason.

Efficacy in Instructional Strategies

Based on the survey responses, it appears that Elementary General Education Teachers (3-5) feel most comfortable with their instructional strategies. Each question response averaged an 8 while Elementary General Education Teachers (K-2) and Elementary Specialists question responses averaged between 7 and 8. Based on the results of this, more research needs to be

conducted to ascertain why Elementary General Education Teachers (3-5) averaged higher for most of the question responses.

Efficacy in Classroom Management

Once again it appears that Elementary General Education Teachers (3-5) had higher self-efficacy levels based on the average of the respondents. Two questions (5 and 8) had an average response of 9 for Elementary General Education Teachers (3-5) while it only had a response of 8 for Elementary General Education Teachers (K-2) and Elementary Specialists. Elementary General Education Teachers (K-2) had one response that averaged 6 (21) with no other question for any group under classroom management averaged lower than a 7.

Findings from Analysis Results and Conclusions from Findings

The overall question that enabled this research was:

- Do high stakes assessments negatively impact teacher self-efficacy levels? Further, do teachers levels of self-efficacy change at the elementary level due to a high stakes assessment?

This research found that teacher efficacy is higher among Elementary General Education Teachers (3-5) than Elementary General Education Teachers (K-2) and Elementary Specialists. Since this dissertation has no other research to compare, the results of this current study does warrant more research. A teacher with a high sense of self-efficacy tends to believe that his or her students must take some responsibility for their own learning (Allington, 2002). These teachers also believe that all children are capable of learning no matter their background, family life, or educational experience (Deemer, 2004). One reason for this could be the relationships that are established for Elementary General Education Teachers. Many specialists see each student only two or three times a week whereas an elementary general education teacher instructs

each student for the majority of each day. Due to the greater time that elementary general education teachers spend with their students, stronger relationships could be built. This trust among teacher and student may enhance a teacher's self-efficacy beliefs.

Research Question 1: How do self-efficacy scores compare in the areas of (a) student engagement, (b) instructional strategies, and (c) classroom management when teachers are placed to instruct an elementary general education classroom vs. serve as an elementary specialist?

For research question 1, the results show that elementary general education teachers have higher efficacy levels than elementary specialists in all three categories. At the 0.05 level, the data revealed that there was a significant difference in self-efficacy levels in student engagement and instructional strategies with a p-value of .028 and .005 respectively. This data indicates that elementary specialists have lower self-efficacy levels than their counterparts. Further research needs to be conducted to examine why this is. Though not significant, elementary general education teachers had higher self-efficacy levels than elementary specialists in classroom engagement at the 0.05 level. The data indicated a p-value of .106 when comparing elementary general education classroom teachers and elementary specialists.

Research Question 2: How do self-efficacy scores compare in the areas of (a) student engagement, (b) instructional strategies, and (c) classroom management when teachers are asked to instruct in SOL-tested subjects vs. when they are not?

When comparing the self-efficacy levels of elementary generalists who teach SOL tested subjects (grades 3-5) and elementary generalists who teach non-SOL tested subjects (K-2), elementary generalists who instruct SOL tested subjects have higher self-efficacy levels than their counterparts. In all three categories; student engagement, instructional strategies, and

classroom management, SOL tested generalists had higher efficacy levels. At the 0.05 level, the results were significant in each category assessed. Each significant p-value for each category was 0.000.

Teachers that took part in this study typically had above average self-efficacy levels when compared to Hoy's research utilizing the self-efficacy scale (Hoy, 2001). All three teacher groups had above average self-efficacy scores in instructional strategies and classroom management. This is consistent with research that indicates what characteristics of teachers with a high sense of self-efficacy. Teachers with a high sense of self-efficacy typically: 1) have students remain focused on learning, 2) were focused on their instructional delivery, 3) utilized direct instruction techniques, 4) used various instructional strategies that had students think, plan, and progress their own learning (Henson, 2002; Deemer, 2004; Swars; 2005). The only group that scored above average in student engagement were the elementary general education teachers (3-5). Both the elementary general education teachers (K-2) and elementary specialists had a below average overall score in student engagement.

Implications for Practice

This dissertation found that elementary general education teachers have higher levels of self-efficacy than elementary specialists. This study also found that elementary general education teachers (3-5) have higher efficacy levels than elementary general education teachers (K-2) which demonstrates that high stakes testing does not force self-efficacy levels for elementary general education teachers (3-5) to drop below their colleagues. The results of this dissertation should not only influence practice for educational leaders but also influence future research.

Implications for Educational Leaders

Principals and educational leaders must be always attempting to find new ways of building the self-efficacy of their staff. Staff members must be encouraged to take risks when teaching and must also feel confident teaching their subject area. School divisions need to make an effort to increase teacher efficacy among all of their employees (Protheroe, 2001). One possible reason for the lower efficacy levels among elementary specialists is the lack of relationships built with student. Elementary general education classroom teachers typically interact with their students for longer periods of time throughout the school day. Specialists on the other hand may only see their students for one class period a week. While research has not been conducted to study this cause, it would be worthwhile.

Educational leaders must be able to have conversations with teachers about how they can grow as an instructional practitioner. These honest and reflective conversations can help create opportunities for growth within the educational community (Goddard and Skrla, 2006). Being able to have these conversations, teachers will feel valued and appreciated while gaining confidence within their professional lives. Confidence and self-efficacy are different but having a teacher gain confidence within their profession will certainly help contribute to the academic growth of students.

Educational leaders must be aware of what causes a teacher's self-efficacy level to increase or decrease. Professional development has been proven to aid in the strengthening of teacher self-efficacy beliefs when a new curriculum is implemented (Bennett, 2007). Principals should be aware of this study. If a new curriculum is being implemented by a school district for any grade level or specific subject, professional development needs to occur. This would ensure that teachers feel more confident implementing the new curriculum. If a principal feels that a teacher is not feeling confident after attending a professional development exercise, then the

principal can choose to have that teacher speak with a colleague who is in a similar instructional role regarding the new practice, This could help ensure a smooth transition. This action would assist many elementary specialists who often do not receive the same amount of professional development as their counterparts who instruct general education.

Implications for Teacher Preparation Programs

Another implication from this dissertation is that colleges and universities need to ensure that all of the student teaching requirements include a student teaching experience that is based on building self-efficacy for all student teachers. Preservice teachers need an opportunity to ensure they are building confidence instructing in a variety of settings. Perhaps a longer, more in-depth design of the student teaching/practicum experience would allow for preservice teachers to experience instruction on a variety of different levels. Bandura's research proves that "mastery experience" is the best contributor to a high level of self-efficacy. Student teachers need an opportunity to gain "mastery experience" by experience instruction in a variety of different settings (Bandura, 1977).

Colleges and universities want to mold their students into teachers who positively impact instruction while maintaining a high-sense of self-efficacy. Many colleges and universities only allow for student teaching to occur during one or two semesters. Giving an opportunity for student teachers to experience instruction with a mentor teacher with a high sense of self-efficacy is crucial to their development. Student teachers need to be experiencing instruction early in their college/university experience rather than later on. Classes that the teachers take as a part of their coursework should be practical to instructing students with a focus toward the "Arts and Science" teaching (Woolfolk and Hoy, 1990). A teacher that is experienced and that is regarded as a "master teacher" should be assisting a novice teacher throughout their first year.

It is possible that the training of preservice teachers needs to be reexamined. Teachers that can be gradually trained into the profession may serve as a more effective means of preparation. This begs the question, "Do novice teachers who went through a five year master's program for teaching have higher self-efficacy levels than novice teachers who hold a bachelor's degree?" Research should be conducted to analyze if a program with more preparation requirements tends to give their students higher efficacy levels.

Implications for Teachers

Teachers who reflect on their own self-efficacy beliefs often underestimate or overestimate their actual instructional ability (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Understanding where teachers are lacking instructionally could prove to be helpful when examining teacher self-efficacy beliefs (Pfaff, 2000). A teacher may answer the TSES one way but their answer may not be reflective of their instructional practice. Designing appropriate professional development to assist teachers in their shortcomings can help prove to be valuable experience for the teachers in building their self-efficacy beliefs.

The conceptual framework below helps map the possible implications of this study.

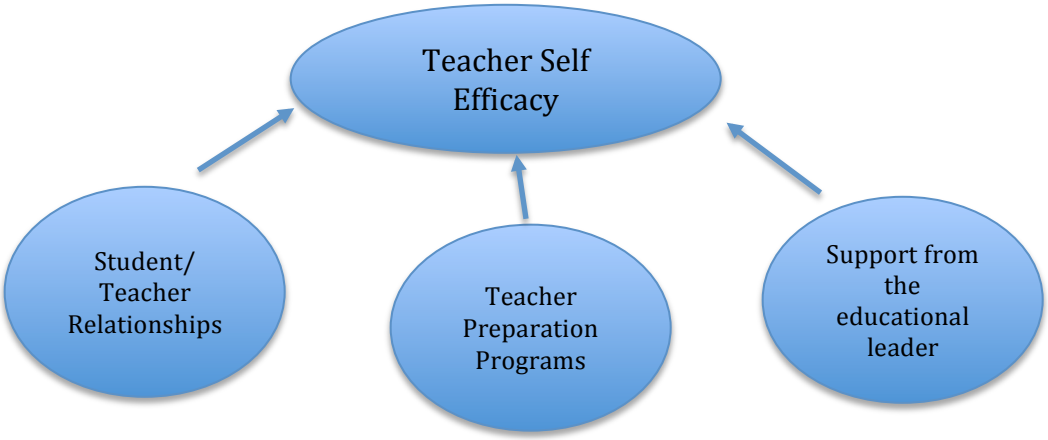

Figure 4: *Factors that Influence Teacher Self-Efficacy*

Strengths

This dissertation contributes to research in many ways. First, this dissertation sought to find an area within the research of teacher efficacy that has not been explored. Studies before this dissertation have examined teacher self-efficacy beliefs among different subgroups within the teaching profession but have yet to examine teacher groups within a specific context. Also, since teacher self-efficacy research is a "saturated" subject within educational research, many qualitative studies seek to find differences in self-efficacy beliefs among teacher subgroups but only analyze a small number of teachers. In contrast, this quantitative study was able to find a large enough sample to implement a proven teacher self-efficacy scale to diverse teacher population. Furthermore, this dissertation is well-grounded in a theoretical framework (social cognitive theory, human agency). Many studies that examine teacher self-efficacy beliefs in relation to school improvement fail to have a strong guidance of theory which can result in a lack of appropriate measurement of teacher self-efficacy. This study was able to utilize social cognitive theory and human agency through the work of Bandura and Hoy while applying a proven measurement tool for analyzing teacher self-efficacy beliefs. McLaughlin and Talbert

(2001), discussed the possibility of smaller communities that exist within an educational institution. This study was able to find the smaller communities that exist within a school and analyzed their self-efficacy beliefs according to their instructional practice as it relates to a high-stakes assessment.

Limitations

The TSES was a useful instrument that measured self-efficacy in three areas, instructional strategies, student engagement, and classroom management. Hoy makes the argument that all three categories are related to student academic achievement. This dissertation does have some limitations related to the evaluation of teacher efficacy which the TSES is unable to control for. The TSES can also be considered a general measure of teacher self-efficacy and not specific enough to diagnose where an individual may be lack in self-efficacy.

One limitation of this dissertation is that each data point was treated as independent. It is possible the results could change if each data point was not considered independent. Both the parametric and non-parametric tests assume independent data. The research had no matched pairs (i.e. survey the same teacher before and after they became a specialist) so there are no dependent-data type tests available. Another limitations is the relatively small amount of surveys that were answered. For example, only 10 specialists took part in this research. If more people took the survey, the results could have changed or the results could be different.

There are also methodological concerns regarding the data collection and analysis methods. For example, the participants of this survey have varying degree levels. Some had their bachelor degrees while many had advanced degrees. This could possibly impact the self-reported self-efficacy levels of the teachers. In addition, the job requirements for each teacher can vary dramatically depending on a variety of environmental factors. The researcher made an

assumption that all of the job requirements are similar. In addition, student factors were not given consideration during the data collection and analysis process. Certain student factors may cause self-efficacy levels to be higher or lower on the TSES.

The researcher also made the assumption that all teachers were completely honest when they filled out the survey. It is possible that the teachers may have answered the survey in a way that is not truly reflective of how they feel. It is also possible that certain teacher groups with a more specialized job may be answering the survey different than their peers because they feel their standard is higher. In addition, Title 1 may impact teacher self-efficacy ratings. Many of the teachers in this dissertation instruct at Title 1 schools so research needs to be conducted to analyze this.

Recommendations for Future Research

There is a need for a qualitative study to examine why teacher self-efficacy levels are higher among elementary general education teachers than elementary specialists. There could be specific reasons why efficacy levels are different and these need to be discovered in order to correct any shortcomings regarding teacher training or instructional practice. This research could be extremely valuable to not only school leaders, but also higher education institutions who provided teacher preparation programs.

Another recommendation would be to find teachers who about to switch from elementary general education to a specialist or vice versa. If a researcher could administer the TSES before and after the switch, valuable information would be gained. This would allow the researcher to examine any possible trends while discovering if certain teacher subgroups have higher self-efficacy than others. A teacher's judgement of his or her capabilities might change due to a switch in an instructional role. It would also be beneficial to test for differences among each of

the three categories of the TSES. Questions could be developed that are specific to a particular area of each dimension. This would allow for the researcher to diagnose particular areas that teachers are stronger in and weaker in. Further qualitative analysis can then be conducted to ensure that the analysis is correct.

This study investigated the possible relationship between high stakes assessment and teacher self-efficacy by analyzing the teacher self-efficacy beliefs of teacher subgroups (those who administer a high stakes assessment vs. those who do not administer a high stakes assessment). As previously indicated, student-teacher relationship building could be cause for the high teacher self-efficacy beliefs among those teachers who administer high-stakes assessment. A study needs to be conducted that analyzes teacher self-efficacy and the relationship that exists among the student and the teacher. This would provide a more definitive answer as to if this is a possibility that could relate to teacher self-efficacy beliefs.

In addition, this study analyzed teacher self-efficacy beliefs through administering individual surveys to all of the participants. While the goal of this dissertation was to analyze teacher self-efficacy beliefs among teacher subgroups within a particular context, many researchers would argue the importance of analyzing the teacher subgroups as a whole instead of individually administering a survey. This type of study could be qualitative or quantitative based on the design of the researcher. It would be useful for future research to examine this possibility and compare teacher self-efficacy while examining each teacher subgroup as a whole.

This dissertation found that teacher self-efficacy is higher among elementary general education teacher than elementary specialists. The results of this study were significant. A follow up study should be conducted to analyze teacher common planning time or collaborative learning team time and teacher self-efficacy. Many elementary general education teachers are

required to meet with their team daily or weekly depending on the institution. Often, specialists are not required to do this because they are the only teacher of their particular subject within the school. Looney (2003) found that "teachers' perceptions of a departmental professional community to account for a significant amount of variance in their efficacy" (p. 153). A follow up study could control for the amount of "common planning time" given to teachers within a particular context and their self-efficacy levels. It is possible that common planning time with a teachers of the same instructional context can contribute to a higher level of teacher self-efficacy.

Elementary schools function differently than their middle and high school counterparts. A study should be conducted that analyzes the teacher self-efficacy beliefs of a secondary institution as it pertains to a high stakes assessment. Secondary schools have teachers that are subject specific specialists who instruct several classes of different students. In contrast, aside from elementary specialists, many elementary general education teachers instruct the same students throughout the day but in multiple subjects. Louis (1996) argues that the lack of subject matter specialization in elementary schools may contribute to an atmosphere that is more collegial and more open to sharing skills within the educational context.

If this is the case, it might be possible to consider that since elementary general education teachers have a common goal of having students achieve from one grade to the next through collaboration with each other, the common planning time contributes to a stronger sense of self-efficacy. Getting students ready for the next grade involves an understanding of what the next grade entails academically. Having teachers collaborate with each other to achieve this goal of better collaboration can ensure a more collegial environment. When teachers are departmentalized with only one subject matter specialist for the school, this might reduce the amount of dialogue occurring among members of the educational institution. Earlier studies

indicate that teacher self-efficacy is typically lower at secondary institutions (Midgley, Anderman, & Hicks, 1995; Midgley, Feldlaufer, & Eccles, 1988). A study needs to be conducted to investigate if departmentalization and lack of planning with teachers of a common instructional area is the reason behind this.

A future study should be conducted with a larger sample size. This dissertation included a diverse sample of teachers but a larger sample would further the understanding and significance teacher self-efficacy and instructional practice. In addition, repeating this study at multiple points throughout the school year might prove to be a worthwhile study. This would provide research as to changes in efficacy levels throughout the school year. It could be possible that elementary general education teachers may feel more stress during periods of the year that high stakes assessments are given. This could alter their self-efficacy levels but the extent to which is unknown.

Using methods of measuring self-efficacy levels other than a scale might prove to be a worthwhile research study. This could add credibility to the results found in this dissertation or it could find results that are different from what was found. The results found in these studies can not only influence research in the field of self-efficacy, but it can also provide valuable insight in establishing professional development activities for instructional professionals. The collective efficacy of a school should also be analyzed when comparing schools with subject specific teachers versus schools who have teachers that instruct multiple subjects. Collective efficacy and teacher self-efficacy are related and the results of this study would provide discussion as to which instructional model is best suited for an elementary school.

This research could also be expanded to different states or other schools that use a different high stakes assessment. This dissertation utilized the Virginia Standards of Learning

(SOL) Test as its method of differentiation among teachers within an elementary school. With the emergence of the Common Core State Standards and the PARCC assessment, it is possible that different results could occur. In addition, some states utilize a form of a high stakes assessment for students in the primary grades (Kindergarten, First, Second). This would add a different dynamic to this study. Comparing private schools and public schools can also be an option for exploration.

Alternative studies could also compare the self-efficacy levels of elementary school teachers with a variety of different controls. One possible exploration is analyzing the self-efficacy beliefs of teachers who have children of their own versus those who do not. Moreover, marital status can used to determine if there are self-efficacy differences among elementary school teachers. Individual personality types can also be compared when analyzing the self-efficacy levels of teachers in a particular setting. Additional studies analyzing gender and self-efficacy levels could also be conducted in a variety of settings in order to compare different instructional locations and efficacy levels.

Additional research should also be conducted that examines administrator actions and teacher self-efficacy levels. This dissertation did not account for administrator behavior and teacher self-efficacy levels. It could be possible that different administrator actions and personality types contribute to changes in self-efficacy levels. An administrator that displays particular characteristics may not only contribute to the individual changes in self-efficacy levels among teachers, but may also contribute to the overall collective efficacy of the educational institution.

When examining the individual efficacy levels on particular subgroups of teachers within an elementary school, one may wish to analyze how teacher personality types can influence self-

efficacy levels. For example, a research may wish to examine if the fourth grade teachers within a particular elementary school have higher self-efficacy levels than the fifth grade teachers. If so, does the method an educational leader uses to put teams of teachers together influence the self-efficacy levels of the teachers? This research could lead to new methods for principals of how groups of teachers are placed to serve within an educational setting. Moreover, analyzing the personality types within those groups of teachers can lead to new information on how to assist teachers in growing within the profession.

A new study of first year teachers within the profession could provide valuable insight as well. Conducting this research again with only first year teachers could show which teacher subgroups within an elementary school graduate teacher preparation programs and universities with higher efficacy levels. Student teaching experiences can be analyzed as well to determine the extent of efficacy level influences by the student teaching experience. In addition to analyzing first year teachers and their efficacy levels, conducting a qualitative study with teachers of different experience levels could add valuable insight to research within the field of teacher self-efficacy.

Conclusions

The results of this dissertation indicate that high stakes assessment do not negatively influence teacher self-efficacy beliefs. Elementary general education teachers tend to have higher efficacy levels than their elementary specialist counterparts. In addition, elementary general education teachers who instruct grades three through six tended to display the highest efficacy levels overall in the three categories of student engagement, instructional strategies, and classroom management. Furthermore, this dissertation contributes to the field's overall understanding of factors that can influence a teacher's sense of their self-efficacy. During this

era of standards based reform and state-mandated testing, this dissertation provides possible explanations of teacher self-efficacy levels in particular instructional contexts.

It is crucial for educational leaders to determine methods of increasing teacher efficacy across different instructional contexts. When performance evaluations are linked to student academic progress, all teachers must have a high level of self-efficacy in order to have students improve as much as possible. Researchers need to examine the causes of the self-efficacy differences among the various teacher subgroups. Qualitative studies can be designed to find the root cause of the differences. In addition, research among even smaller subgroups can help lead to a greater understanding of why teacher self-efficacy beliefs are different among a teacher population.

References

Armor, D. (1976). *Analysis of the school preferred reading program in selected Los Angeles minority schools*.

Ashton, P., & Webb, R. (1982). *Teachers' sense of efficacy: Toward an ecological model*. Paper presented at the annual meeting of the American Education Research Association, New York.

At-Risk Definition (The Glossary of Education Reform) http://edglossary.org/at-risk/

Bandura, A. (1977). Self-reinforcement: The power of positive personal control. In P. G. Zimbardo & F. L. Rich (Eds.), *Psychology and life* (9th Ed.). Glenview, IL: Scott Foresman.

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1977). Social learning theory. In B. B. Wolman & L. R. Pomroy (Eds.), *International encyclopedia of psychiatry, psychology, psychoanalysis, and neurology* (Vol. 10). New York: Van Nostrand Reinhold.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Upper Saddle River, NJ: Prentice-Hall.

Baptiste, Ian. *Qualitative data analysis: Common phases, strategic differences*. Forum Qualitative Sozialforschung/Forum: Qualitative Social Research. Vol. 2. No. 3. 2001.

Brownell, M., & Pajares, F. (1999). Teacher efficacy and perceived success in mainstreaming students with learning and behavior problems. *Teacher Education and Special Education*, *22*, 154-164.

Burley, W. W., Hall, B. W., Villeme, M. G., & Brockmeier, L. L. (1991). A path analysis of the mediating role of efficacy in first-year teachers' experiences, reactions, and plans. In annual meeting of the American Educational Research Association, Chicago.

Coladarci, T., & Breton, W.A. (1997). Teacher efficacy, supervision, and the special education resource-team teacher. *Journal of Educational Research, 90*(4), 230-240.

Gibson, S., & Dembo, M. H. (1984). Teacher efficacy: A construct validation. *Journal of educational psychology*, *76*(4), 569.

Goddard, R.D., Hoy, W.K., & Hoy, A.W. (2004). Collective Efficacy Beliefs: Theoretical Developments, Empirical Evidence, and Future Directions. *Educational Researcher, 33*(3), 3-13.

Goddard, R. D., & Skrla, L. (2006). The influence of school social composition on teachers' collective efficacy beliefs. *Educational Administration Quarterly, 42*(2), 216-235.

Gordon, L. M. (2001). *High teacher efficacy as a marker of teacher effectiveness in the domain of classroom management*. San Diego, CA. Presented at the Annual Meeting of the California Council on Teacher Education, (Fall 2001).

Guskey, T. R. (1984). The influence of change in instructional effectiveness upon the affective characteristics of teachers. *American Educational Research Journal, 21*(2), 245-259.

Guskey, T. R. (1988). Teacher efficacy, self-concept, and attitudes toward the implementation of instructional innovation. *Teaching and teacher education, 4*(1), 63-69.

Guskey, T., & Passaro, P. (1994). Teacher efficacy: A study of construct dimensions. *American Educational Research Journal, 31*, 627-643.

Hagen, K. M., Gutkin, T. B., Wilson, C. P., & Oats, R. G. (1998). Using vicarious experience and verbal persuasion to enhance self-efficacy in pre-service teachers: "Priming the pump" for consultation. *School Psychology Quarterly*, *13*(2), 169.

Henson, R. K. (2001, January). *Teacher self-efficacy: Substantive implications and measurement dilemmas*. Presented at the Annual Meeting of the Educational Research Exchange, Texas A & M University.

Hipp, K. A. (1996). Teacher efficacy: Influence of principal leadership behavior.

Howard, T.C. (2002). Hearing footsteps in the dark: African-American students' descriptions of effective teachers. *Journal of Education for Students Placed at Risk, 4*(4), 425-444.

Hoy, A. W., & Spero, R. B. (2005). Changes in teacher efficacy during the early years of teaching: A comparison of four measures. *Teaching and teacher education*, *21*(4), 343-356.

Jennett, H. K., Harris, S. L., & Mesibov, G. B. (2003). Commitment to philosophy, teacher efficacy, and burnout among teachers of children with autism. *Journal of Autism and Developmental Disorders*, *33*(6), 583-593.

Labone, E. (2004). Teacher Efficacy: maturing the construct through research in alternative paradigms. *Teaching and teacher Education, 20*(4), 341-59.

Loiselle, C. G., Lambert, S. D., & Dubois, S. (2006). Beyond the mere dichotomy of active search versus avoidance of information about the self. *Journal of the Medical Library Association, 94*(4), 375.

Langer, J. (2000). Excellence in English in middle and high school: How teachers' professional lives support student achievement. *American Educational Research Journal, 37*(2), 397-439.

Lin, S. J., & Tsai, C. (1999, March 28-31). *Teaching efficacy along the development of teaching expertise among science and math teachers in Taiwan*. Paper presented at the meeting of the National Association for Research in Science Teaching. Boston, MA.

Louis, K.S., Marks, H.M., & Kruse, S. (1996). Teachers' professional community in restructuring schools. *American Educational Research Journal, 33*, 757-798.

Midgley, C., Feldlaufer, H., & Eccles, J.S. (1989). Change in teacher efficacy and student self- and task-related beliefs in mathematics during the transition to junior high school. *Journal of Educational Psychology, 81*(2), 247-258.

Matthew B. Miles, & A. Michael Huberman. (1994). *Qualitative data analysis: An expanded sourcebook*. Sage.

Neuman, S.B. (2003). From rhetoric to reality: The case for high-quality compensatory prekindergarten programs. *Phi Delta Kappan, 85*(4), 286-290.

Ohmart, H. E. (1992). *The effects of an efficacy intervention on teachers' efficacy feelings* (Doctoral dissertation, University of Kansas, Curriculum and Instruction).

Parsley, K., & Corcoran, C. (2003). The classroom teacher's role in preventing school failure. *Kappa Delta Pi Record, 39*(2), 84-87.

Podell & Soodak. (1993). Teacher efficacy and bias in special education referrals. *Journal of Educational Research, 86*, 247-253.

Protheroe, N. (2008). Teacher Efficacy: What Is It and Does It Matter? *Principal, 87*(5), 42-45.

Ross, J. A. (1994). The impact of an inservice to promote cooperative learning on the stability of teacher efficacy. *Teaching and teacher education, 10*(4), 381-394.

Ross, J. A., & Gray, P. (2006). School leadership and student achievement: The mediating effects of teacher beliefs. *Canadian Journal of Education/Revue canadienne de l'éducation*, 798-822.

Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80*.

Saklofske, D. H., Michayluk, J. O., & Randhawa, B. S. (1988). Teachers' efficacy and teaching behaviors. *Psychological Reports*, *63*(2), 407-414.

Soodak, L. C., & Podell, D.M. (1993). Teacher efficacy and student problem as factors in special education referral. *Journal of Special Education, 27*, 66-81.

Stein, M. K., & Wang, M. C. (1988). Teacher development and school improvement: The process of teacher change. *Teaching and teacher education, 4*(2), 171-187

Stronge, J.H. (2007). *Qualities of effective teachers*. Alexandria, Virginia: Association for Supervision and Curriculum Development.

Thompson, B.R. (2004). Equitable measurement of school effectiveness. *Urban Education, 39*(2), 200-229.

Tournaki, N., & Podell, D.M. (2005). The impact of student characteristics and teacher efficacy on teachers' predictions of student success. *Teaching and Teacher Education, 21*(3), 299-314.

Tschannen-Moran, M., Hoy, A. W., & Hoy, W. K. (1998). Teacher efficacy: Its meaning and measure. *Review of educational research*, *68*(2), 202-248.

Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and teacher education*, *17*(7), 783-805.

Tucker, C. M., Porter, T., Reinke, W. M., Herman, K. C., Ivery, P. D., Mack, C. E., & Jackson, E. S. (2005). Promoting teacher efficacy for working with culturally diverse students. *Preventing School Failure: Alternative Education for Children and Youth, 50*(1), 29-34.

Watters, J. J., & Ginns, I. S. (1995). *Origins of, and changes in preservice teachers' science teaching self-efficacy*.

Appendix A

Teacher Self-Efficacy Survey

Participation in this survey is completely voluntary. In addition, no names will be collected for this survey.

* 1. How much can you do to get through to the most difficult students?

1. Nothing	2	3.Very Little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 2. How much can you do to help your students think critically?

1. Nothing	2	3. Very Little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 3. How much can you do to control disruptive behavior in the classroom?

1. Nothing	2	3. Very Little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 4. How much can you do to motivate students who show low interest in school work?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 5. To what extent can you make your expectations clear about student behavior?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 6. How much can you do to get students to believe they can do well in school work?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 7. How well can you respond to difficult questions from your students ?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 8. How well can you establish routines to keep activities running smoothly?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 9. How much can you do to help your students value learning?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 10. How much can you gauge student comprehension of what you have taught?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 11. To what extent can you craft good questions for your students?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 12. How much can you do to foster student creativity?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 13. How much can you do to get children to follow classroom rules?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 14. How much can you do to improve the understanding of a student who is failing?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 15. How much can you do to calm a student who is disruptive or noisy?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 16. How well can you establish a classroom management system with each group of students?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 17. How much can you do to adjust your lessons to the proper level for individual students?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 18. How much can you use a variety of assessment strategies?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 19. How well can you keep a few problem students form ruining an entire lesson?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 20. To what extent can you provide an alternative explanation or example when students are confused?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 21. How well can you respond to defiant students?

1. Nothing	2	3. Very little	4. Some influence	5	6. Quite a bit	7	8. A great deal
○	○	○	○	○	○	○	○

* 22. How much can you assist families in helping their children do well in school?

1. Nothing	2	3. Very little	4.	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 23. How well can you implement alternative strategies in your classroom?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 24. How well can you provide appropriate challenges for very capable students?

1. Nothing	2	3. Very little	4	5. Some influence	6	7. Quite a bit	8	9. A great deal
○	○	○	○	○	○	○	○	○

* 25. Please select your gender.

- ○ Male
- ○ Female

* 26. Please select your age group.

- ○ Under 25
- ○ 26-30
- ○ 31-40
- ○ 41-50
- ○ 51-60
- ○ Over 60

* 27. What is the highest level of school you have completed or the highest degree you have received?

- ○ Bachelor degree
- ○ Masters
- ○ Masters +30
- ○ Educational Specialist (Ed.S)
- ○ Doctorate

* 28. Is your present teaching assignment in an area for which you are certified?

- ○ Yes
- ○ No

* 29. Type of teaching certificate

- ◯ Provisional
- ◯ Professional
- ◯ National Board Certified
- ◯ Other

* 30. Please type in the box below the number of years in an instructional position in education.

* 31. Please type in the box below the number of years in present school district.

* 32. Please type in the box below the number of years in present school.

* 33. Please type in the box below the number of years in present position.

* 34. Do you currently teach in a Title 1 school?

- ◯ Yes
- ◯ No

* 35. Using the scale provided, please indicate by selecting the scale description how likely is it that you will remain in the teaching profession for the duration of your professional career?

	Unlikely	Not very likely	Somewhat likely	Very likely	Likely
Please select	◯	◯	◯	◯	◯

* 36. Are you an **elementary general education teacher** or an **elementary specialist**?
Elementary general education teacher- A teacher who instructs grades Kindergarten-Sixth and teaches the core subjects (math, reading, writing, social studies, science)
Elementary Specialist-Teacher who instructs art, music, physical education, foreign language, or library.

- ◯ Elementary General Education Teacher
- ◯ Elementary Specialist

* 37. What grade or subject do you currently instruct?

- Kindergarten
- First
- Second
- Third
- Fourth
- Fifth
- Sixth
- Art
- Music
- Physical Education
- Foreign Language
- Library

Appendix B

OLD DOMINION UNIVERSITY
IDEA FUSION

CHRISTOPHER LITZ <clitz002@odu.edu>

Efficacy Scale

4 messages

CHRISTOPHER LITZ <clitz002@odu.edu> Tue, Apr 14, 2015 at 8:13 PM
To: anitahoy@mac.com

Hello Dr. Anita Woolfolk Hoy,
My name is Christopher Litz and I am a Ph.D student at Old Dominion University. I am beginning to conduct research on teacher self-efficacy beliefs among classroom teachers and specialists. I was wondering if I could have your permission to use your efficacy scale. This efficacy scale would help tremendously in my research. Thank you for your time. If you need additional information, please contact me by email at clitz002@odu.edu

Best,
Christopher Litz

Anita Woolfolk Hoy <anitahoy@mac.com> Wed, Apr 15, 2015 at 9:27 AM
To: CHRISTOPHER LITZ <clitz002@odu.edu>

You are welcome to use the TSES in your research. See this website:

http://u.osu.edu/hoy.17/research/instruments/

Anita

ANITA WOOLFOLK HOY, PHD
PROFESSOR EMERITA
THE OHIO STATE UNIVERSITY
7655 PEBBLE CREEK CIRCLE, UNIT 301
NAPLES, FL 34108
anitahoy@mac.com
415-640-2017

http://u.osu.edu/hoy.17/